## DATH SUUFITCCIENCY OUES'FIONS WHYH SOLIU'IIONS

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Data sufficiency is one of the most important as well as most difficult type of question. Questions based on data sufficiency requires deeper knowledge in the subject area. Data sufficiency questions can be from any topic viz Numbers, Arithmetic, Algebra, Geometry, and puzzles. These questions are not only difficult but also confusing. Students generally get confuse with the given information. Some general tips to solve the data sufficiency questions are discussed below.

Tip $1: 1$ st and foremost is understanding of options.

Tip 2 : Identify the parent question, means the main question that is asked.

Tip 3 : Look at the statement (i) and information given in that, see whether it is sufficient enough to answer the parent question.

Tip 4 : Look at the statement (ii) and information given in that, most important is that whenyou see statement (ii) then just forget the information given in statement (i), then seewhether it is sufficient enough to answer the parent question.

Tip 5 : When the given statements are not sufficient then use information given in both the statements.

First, set your timer for 2 minutes and try this problem:
*" A contractor combined $x$ tons of gravel mixture that contained 10 percent gravel $G$, by weight, with y tons of a mixture that contained 2 percent gravel $G$, by weight, to produce z tons of a mixture that was 5 percent gravel $G$, by weight. What is the value of $x$ ?
"(1) $y=10$
"(2) $z=16 "$
After trying the problem, checking the answer, and reading and understanding the solution (read the original article, linked above), I try to answer these questions:

## 1. Did We know WHAT they were trying to test?

It's testing the concept of average (arithmetic mean) and, more specifically, it's testing the concept of weighted average. The problem never mentions the word "average" but we figured this out because the problem talks about 2 sub-groups that are combined in some way to make a 3rd overall group, or mixture of the original 2 sub-groups.

- Did we COMPREHEND the symbols, text, questions, statements, and answer choices? Can we comprehend it all now, when we have lots of time to think about it? What do we need to do to make sure that we do comprehend everything here? How am we going to remember whatever we've just learned for future?
we noticed that the problem has three variables: $x, y$, and $z$. It asks to solve for the value of $x$. One of the statements gives us the value for $y$ and the other gives us the value for z. We already thinking $E$ is probably not the right answer (think about why before you keep reading - We'll explain this under the "Other Strategies" question, below).
- Did we understand the actual CONTENT (facts, knowledge) being tested?

What kind of average is this problem discussing? Regular average / mean is characterized by the formula $A=S / n$, where $A$ is the average of the set, $S$ is the sum of the items
in the set, and $n$ is the number of items in the set. Is this problem testing "regular" averages? Let's see: a "regular" average of $10 \%$ gravel and $2 \%$ gravel would be $(10+2) / 2=6$. But the problem says the resulting mixture is $5 \%$ gravel, not $6 \%$ gravel - so this isn't a "regular" average.

That means this problem must be about the more complicated weighted average. In a weighted average, some of the elements are weighed, or counted more heavily, than other elements, so the calculation has to take that into account. (And we have to know how to do that... more on that later.)

## 2. How well did We HANDLE what they were trying to test?

- Did We choose the best APPROACH? Or is there a better way to do the problem? (There's almost always a better way!) What is that better way? How we are going to remember this better approach the next time we see a similar problem?

Weighted average problems can be solved by using the weighted average formula, which is what we tried to do. we got into trouble with it though - we didn't set it up properly and so we couldn't finish it to see whether we could solve.

There's a shortcut solution method that we could have used, but we forgot about it when we was doing this problem.

- Did w have the SKILLS to follow through? Or did we fall short on anything?

We ended up having to guess because we couldn't solve the "official math" way and then we forgot to try the easier "shortcut" way. We are going to redo this problem using the easier shortcut, and also going to go find a couple of
additional weighted average problems and do those with the easier shortcut way so that we can make sure that (a) We know how to do it this way, and (b) We remember / recognize when we can do it this way.
we should still also learn how to do this using the "official math" weighted average formula, just in case we ever have to use the long way.

- Did we make any careless mistakes? If so, WHY did we make each mistake? What habits could we make or break to minimize the chances of repeating that careless mistake in future?

When we tried to use the "official" formula, we couldn't remember exactly how to set it up, so we ended up setting it up with too many variables, and then of course we couldn't solve. It's data sufficiency, so knowing we can't solve is sufficient... except that we knew we were doing something wrong because we couldn't really remember the formula. we need to go and study that formula. we should make a flash card with "weighted average formula" on one side, and the couple of different ways the formula can be written on the other side.

- Do we are comfortable with OTHER STRATEGIES that would have worked, at least partially? How should we have made an educated guess?

We were pretty sure it wasn't $E$ because it looks like you can set up a three-variable equation, and then we're supposed to solve for $x$. Each statement gives us only one of the two remaining variables, so it "looks like" it can't be done unless you have both of the other variables... which you would for answer choice $C$. So, at the least, $C$ does work and it's not $E$.

We ended up guessing C but, in hindsight, that's a trap too. we could ask my 14-year-old niece: if you have an equation with three variables and you want to solve for one of those variables, what do you need to know? And she'd say "The other two variables." (And then she'd probably think, "Duh, Aunt Stacey.") This test isn't for my 14-year-old niece, though, it's for people who have already graduated from college. So that's too easy. And that's really interesting, because that means that you most likely CAN actually solve given just one statement. Each statement represents one of the two unknown variables, so if one works, it's fairly likely that the other one works too... so we probably should have guessed D.

- Do we understand every TRAP \& TRICK that the writer built into the question, including wrong answers?

See above - we think C and E are both trap answers on this one, and $C$ is especially tempting.

## 3. How well did we or could we RECOGNIZE what was going on?

- Did we make a CONNECTION to previous experience? If so, what problem(s) did this remind me of and what, precisely, was similar? Or did we have to do it all from scratch? If so, see the next bullet.
- Can we make any CONNECTIONS now, while we were analyzing the problem? What have we done in the past that is similar to this one? How are they similar? How could that recognition have helped me to do this problem more efficiently or effectively? (This may involve looking up some past problem and making comparisons between the two!)

Yes, we did make a connection, but we also missed one. we did recognize that this was a weighted average problem even though it didn't explicitly mention the word "average," so we are happy about that. we didn't recognize, however, that we could have used a big shortcut that would have saved us a lot of time and frustration. we need to go study that shortcut, how to recognize it, how to use it, etc - and maybe make a couple of flash cards.

- HOW will we recognize similar problems in the future? What can we do now to maximize the chances that we will remember and be able to use lessons learned from this problem the next time we see a new problem that tests something similar?
we need to do everything we already described in our notes above. we are also going to re-do this problem from scratch-actually make yourself write out the best way to do it, alternate ways to do it, how to make a guess, and so on, so that we really remember the lessons. Then, because our big problem on this one was with recognizing that we could use a shortcut and then actually using it, we are going to find other weighted average problems that we've already done in the past and practice: (1) knowing how to recognize that it's a weighted average and that it qualifies for the "weighted average shortcut," (2) working through the problem using that shortcut, and (3) thinking about how to make an educated guess. Then we are going to do new weighted average problems as part of a mixed set of problems consisting of things we've messed up recently and other random things (so that we don't know exactly what we were getting for each problem) and see whether we can quickly recognize and apply what we just learned.

And that's it! Note that, of course, the details above are specific to each individual person -
such a write-up would be different for every single one of you, depending upon your particular strengths, weaknesses, and mistakes. Hopefully, though, this gives you a better idea of the way to analyze a problem. This framework also gives you a valuable way to discuss problems with fellow online students or in study groups - this is the kind of discussion that really helps to maximize scores.

We have seen that a majority of aspirants try follow guess work to solve these data sufficiency questions. This is not the right approach. So instead of guessing, we should use certain tips and tricks to solve these questions.

## - Don't Solve the Question:

The interesting part about DS type questions is that they only ask you whether the question can be solved with the help of information given in the statements. That simply means there is no need to solve that question completely and waste your precious time. So just answer these questions and do not even try to solve them .There are several common tricks.

Do not think in terms of "What will be the exact value?" or "Is it true or false?"

Instead, just focus on only one issue: "Is the information enough o answer the question?"

## Example:

Directions:-

- if statement I alone is sufficient to answer the question, Marks $A$ as answer
- if statement II alone is sufficient to answer the question, Marks B as answer
- if statement I and II together are sufficient to answer the question but
neither statement aloneis sufficient to answer the question, Marks C as answer
- if either statement I or II aloner is sufficient to answer the question, Marks D as answer
- if statement I and II together are not sufficient to answer the question, Marks $E$ as answer

How much was the cost of Diamond Necklace in January 2000?
(1) In January 2010 the necklace was worth $\$ 10,000$.
(2) Over the ten years 2000-2010, the necklace increased in value by $10 \%$ each 12 months.

## Solution

Statement (1) is insufficient. You don't know the rate at which value has changed. You immediately know the answer must be B, C or $E$.

Statement (2) is insufficient. Without a value between 2000 and 2010, you can't calculate the value.

Using statements (1) and (2) together, you could calculate the value in 2000. Since you need both statements to find the value, the answer is option (C).

The trick: Don't do the calculation. For most "value" questions, you could calculate the value but calculations are a waste of time. The problem asks if there is enough information to answer the question, not for the actual answer.

## - Atempt YES NO type questions first

A number of questions are based on "YES-NO" type data. See the statements and discard them on the basis of yes or no.

## Example:

- if statement I alone is sufficient to answer the question, Marks $A$ as answer
- if statement II alone is sufficient to answer the question, Marks B as answer
- if statement I and II together are sufficient to answer the question but neither statement aloneis sufficient to answer the question, Marks $C$ as answer
- if either statement I or II aloner is sufficient to answer the question, Marks $D$ as answer
- if statement I and II together are not sufficient to answer the question, Marks $E$ as answer

Is x divisible by 28?
Statement I: x is divisible by 20

Statement II: x is divisible by 84
Answer. Using statement 1 - x is divisible by 4 and 5

Using statement II - x is divisible by 3, 4 and 7.

By using both statements we can conclude that $x$ is divisible by $28\left(4^{*} 7\right)$, hence answer is $C$.

- Treat both the statements separately:

So now you have studied the question and analyzed the information given in, now is the time to analyze the statements given in the question. The key rule here "Read statements independently of each other". Try to "forget" statement 1 before you move on to statement 2.

Don't carry over any info from statement 1 when you read statement 2.

## Example:

How many adults eat pizza in city $X$ if all adults in city $X$ either eat Pizza or Pasta?
(1) $75 \%$ of the 100,000 adults in city $X$ eat Pasta.
(2) 75,000 adults in city $X$ eat Pasta.

## Solution

Statement (1) is sufficient. Taking a percent of a total population allows you to calculate the adults that eat pizza. (NO need to do the calculation.) You immediately know the answer is $A$ or $D$.

Statement (2) is insufficient. Without the total population or other information, you can't calculate the number of adults eating pasta.

Since first statement alone is sufficient, the correct answer is option (A).

The trick: Keep the information from first statement and second statement as separate. Either the percentage or total population from first statement can make second statement sufficient.

Always read each statement separately.
When you read second statement, forget what you read in first statement so you can evaluate second statement alone.

The only time to combine the statements is when each of them is insufficient alone

- Eliminate wrong options:

This will help you to eliminate the statements quickly if you have something to compare with the information given.

Do this step with a focused mind.

If first statement is sufficient, eliminate $B, C$, and $E$.

You will now be left with only two options ie A and $D$.

In the same way If second statement is sufficient, eliminate $A, C$, and $E$.

You will now be left with only two options ie B and $D$.

Conversely if first statement is NOT sufficient, eliminate A and D

In the same if second statement is NOT sufficient, eliminate B and D.

In this way you can eliminate a number of options.

## Sample Question \#1

A certain group of car dealerships agreed to donate x dollars to a Red Cross chapter for each card sold during a 30-day period. What was the total amount that was expected to be donated?

1. A total of 500 cars were expected to be sold.
2. 60 more cars were sold than expected, so that the total amount actually donated was $\$ 28,000$.
3. Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient
4. Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient
5. Both statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient
6. EACH statement ALONE is sufficient
7. Statements (1) and (2) TOGETHER are NOT sufficient

## Correct Answer: C

## SAMPLE QUESTION \#1 EXPLANATION

The best way to approach data sufficiency questions is to take each statement individually first, before having to consider them together. To that end, let's start with statement 1.

Statement 1: The question asks us to determine how much money will be donated to the Red Cross based on the number of cars sold at the dealership. With data sufficiency questions, we always want to start with what we know.

We know that 500 cars are expected to be sold, as it tell us that in statement 1. Now, we need to decide if we can figure out how much money will be donated.

The question tells us that $x$ dollars will be donated for each car sold, so the equation 500x represents the total amount of the expected donation.

However, we don't know the value of $x$, and we have no way of determining it from the information given. So, we cannot solve the equation 500x, meaning that statement 1 is NOT sufficient for us to solve this problem.

Statement 2: Just as we took statement 1 by itself, let's take statement 2 by itself first.

Statement 2 tells us that 60 more cars were sold than expected. If we know that x represents the
amount of money donated to the Red Cross for each car, then we know that 60x represents the amount donated beyond the expected amount, because 60 cars were sold and $x$ dollars were donated for each car.

If the total amount of the donation was $\$ 28,000$, then the total amount that was expected can be found using the equation $\$ 28,000-60 x$, with $60 x$ representing the unexpected amount we found before. Since we don't know what x represents, we can't find the total amount of the expected donation using Statement 2 alone.

Now that we've evaluated both statements individually, it's time to evaluate them together. The first thing I notice when I look at both statements is that both statements have x in them. That means that I can combine the statements and solve for $x$.

Combining the two statements yields me the equation $500 x=28000-60 x$. From there, I can determine the total amount of the expected donation since I can combine like terms and solve for $x$.

Notice that I don't actually have to solve this equation. All I need to do is know that I can solve it. Since I can solve with the statements together, but not alone, my correct answer is $C$.

## Sample Question \#2

A certain wooded lot contains 56 oak trees. How many pine trees does the lot contain

1. The ratio of the number of oak trees to the number of pine trees in the lot is 8 to 5.
2. If the number of oak trees was increased by 4 and the number of pine trees remained unchanged, the ratio of the
number of oak trees to the number of pine trees in the lot would be 12 to 7 .
3. Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient
4. Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient
5. Both statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient
6. EACH statement ALONE is sufficient
7. Statements (1) and (2) TOGETHER are NOT sufficient

## Correct Answer: D

The first step in this question is to figure out what you're trying to solve for. The question asks you how many pine trees the lot contains. Let's use $p$ as our variable to represent the number of pine trees the lot contains. You're trying to solve for $p$ in this equation.

Statement 1: Remember, we always want to start out by evaluating each statement individually. Statement 1 says that the ratio of oak trees to pine trees is 8 to 5 . The ratio 8 to 5 can also be represented as $8 / 5$. We can also say that the number of oak trees to pine trees is 56 to $p$, or 56/p, based on the information in the question.

Now, we can set the equations equal to each other because they both represent the same thing (ratio of oak to pine trees). Setting the equations equal to each other yields the equation $8 / 5=56 / p$. Because there is only one variable in this equation, I will be able to solve for $p$ with no extra information. Statement 1 is therefore sufficient to answer the question.

Statement 2: Even though we already know that Statement 1 is sufficient, we're still going to solve evaluate Statement 2 by itself first.

Statement 2 says that the number of oak trees increased by 4. The question tells us that the original number of oak trees was 56 , so $56+4=$ 60. 60 is the new number of oak trees.

Next, the statement tells us that the ratio of oak trees to pine trees is now 12 to 7 . We can also write the ratio of 12 to 7 as 12/7. We can also say that the number of oak trees to pine trees is 60 to $p$ or $60 / p$. Just as we did with Statement 1, we can set the equations equal to each other, yielding the equation $60 / p=12 / 7$.

Remember, we don't need to solve for $p$, we just need to know that we can. Based on the information in Statement 2, we can also solve for $p$.

Statements 1 and 2 both contain enough information for us to answer the question, so the correct answer is $D$.

## Sample Question \#3

Does $2 m-3 n=0$ ?

1. $m \neq 0$
2. $6 m=9 n$
3. Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient
4. Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient
5. Both statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient
6. EACH statement ALONE is sufficient
7. Statements (1) and (2) TOGETHER are NOT sufficient

## Correct Answer: B

Let's start off by examining the question. We always want to make sure we understand
what the question is asking us. We also want to make sure that we simplify the question, if possible,because simplifying the question will give us easier and clear equations to use as we solve the problem. In this case, we can simplify the question. The question "Does $2 m-3 n=0$ " is equivalent to the simpler question "Does $2 m=3 n$ ?"

Statement 1: If you've read the explanations for the previous two questions, I probably sound like a broken record by now, but l'll repeat myself again. Remember, we always want to evaluate each statement individually, before looking at them together.

Let's look at Statement 1 by itself. Statement 1 says that $m$ doesn't equal 0 . That doesn't give us a lot of information. Let's go back to the original equation and see what we can learn there.

In the original, we see that $2 m=3 n$. In that equation, we also don't have a lot of information. Statement 1 leaves an infinite range of possible values for $m$, and, since neither Statement 1 nor the original equation address possible values for $n$, we have no way to figure out the relationship between $m$ and $n$. Therefore, Statement 1 is not sufficient.

Statement 2: Even though we know Statement 1 isn't sufficient, we're going to try to figure out Statement 2 by itself first. Statement 2 says that $6 m=9 n$. Right away, I notice that both 6 and 9 are multiples of 3 , so the equation can be simplified by dividing each term by 3.

When I divide each term by 3 , I get $6 \mathrm{~m} / 3=$ $9 n / 3$. If I simplify that, I get $2 m=$ $3 n$. Remember, $2 m=3 n$ is the original equation I'm looking for, so Statement 2 is sufficient and the correct answer is $B$.

## Sample Question \#4

If $n$ is a member of the set $\{33,36,38,39,41$, $42\}$, what is the value of $n$ ?

1. $n$ is even.
2. $n$ is a multiple of 3 .
3. Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient
4. Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient
5. Both statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient
6. EACH statement ALONE is sufficient
7. Statements (1) and (2) TOGETHER are NOT sufficient

## Correct Answer: E

Let's start out by understanding what the question's asking us. It's asking us to determine the value of $n$, which is a member of the set $\{33$, $36,38,39,41,42\}$. So, for our statements to be sufficient, they need to help us decide which of those six numbers $n$ is.

Statement 1: Look at Statement 1 alone first. Statement 1 says that $n$ is even. That implies that $n$ can be either 36,38 , or 42 , because those are the even numbers of that six number set. However, there's no other information in the statement that can help us narrow down which one of those three numbers $n$ is. So, Statement 1 is not sufficient.

Statement 2: Statement 2 says that $n$ is a multiple of 3 . This implies that $n$ could be 33, 36,39 , or 42. However, there's no further distinction in Statement 2 to determine which of those four numbers $n$ is. So, Statement 2 is not sufficient.

If we combine Statements 1 and 2 together, $n$ is even and a multiple of three. That leaves us with $n$ equaling either 36 or 42 , with no way to determine which of those $n$ is. Therefore, the statements are insufficient alone and together, so the correct answer is $E$.

## PATTERN OF QUESTION

Directions : Each of the following questions is followed by two statements. Mark

## (a) if statement I alone is sufficient to answer the question.

(b) if statement II alone is sufficient to answer the question.
(c) if both statement I and II together are necessary to answer the question.
(d) if both statements I and II together are not sufficient to answer the question

Directions: In each of the following questions, a question is followed by two or three statement. Read all the statements and find that which statements are required to answer the question and answer accordingly.

Who is the tallest among $A, B, C, D$ and $E$ ?
I. $D$ is the tallest among $C, A$ and $E$.
II. $B$ is not shorter than at most $A$ and $E$.
(a) if statement I alone is sufficient to answer the question.
(b) if statement II alone is sufficient to answer the question.
(c) if both statement I and II together are necessary to answer the question.
(d) if both statements I and II together are not sufficient to answer the question

Solution: From I, we get that
$D>C, A, E$.

From II, B is the third or 4th tallest or the shortest person.

On combining, we get that $D$ is the tallest person.
Hence, option c.
Directions: In each of the following questions, a question is followed by two or three statement. Read all the statements and find that which statements are required to answer the question and answer accordingly.

Who is the tallest among $A, B, C, D$ and $E$ ?
I. $D$ is the tallest among $C, A$ and $E$.
II. $B$ is not shorter than at most $A$ and $E$.
(a) if statement I alone is sufficient to answer the question.
(b) if statement II alone is sufficient to answer
the question.
(c) if both statement I and II together are necessary to answer the question.
(d) if both statements I and II together are not sufficient to answer the question

Among four friends $A, B, C$ and $D$, who is the heaviest?
I. $B$ is heavier than $A$, but lighter than $D$.

## II. $C$ is lighter than $B$.

## Solution:

From $I$, we have $A<B<D$.
From II, we have $C<B$.
Combining (i) and (ii), we can conclude that $D$ is the heaviest. So, both the statements are needed

## Problems Based On Data Sufficiency

Directions: In each of the following questions, a question is followed by two or three statement. Read all the statements and find that which statements are required to answer the question and answer accordingly.

1. How much time will Train P take to cross Train $Q$ (from the moment they meet) running in opposite directions (towards each other) ?
statement I: The respective ratio of speeds of Train P and Train Q is 3:4. The sum of the lengths of Train P and Train $Q$ is 700 metre.
statement II: Train P can cross a signal pole in 12 seconds. It can cross 600 metre long station in 25 seconds.
A) Only I
B) Both I and II
C) Only II
D) Either I or II
E) Neither I nor II

## Answer

## Option E

## Solution:

From statement I:
Relative speed $=3 x+4 x=7 x$ units
Sum of Length of trains $=700 \mathrm{~m}$
Required time $=700 / 7 x=$ no result
From statement II:
speed of train $P=x / 12=(x+600) / 25$
=> $25 x=12 x+7200$
$\Rightarrow 13 x=7200$
$\Rightarrow>=7200 / 13$

- What is the area the isosceles triangle A ?
statement I: The length of the side opposite the single largest angle in the triangle is 8 cm .
statement II: The perimeter of triangle $X$
is 20 cm .
A) Only II
B) Only I
C) Neither I nor II
D) Both I and II
E) Either I or II


## Answer

Option D
Solution:
In a triangle, the side opposite the largest angle will be the longest. Correspondingly, the side opposite the smallest angle will be the shortest.

- What is the ratio between the two numbers $a$ and $b$ ?
statement l: $50 \%$ of a is $25 \%$ of 80 . statement II: $20 \%$ of b is $10 \%$ of 100 .
A) Both I and II
B) Only I
C)Only II
D) Either I or II
E) Neither I nor II


## Answer

Option A
Solution:
Both I and II required together.

- What is the age of $R$, in a group of $P, Q$, $R, S$ and $T$ whose average age is 45 years?
statement I: Average of the age of $S$ and $T$ is 47 years?
statement II: Average of the age of $P$ and $Q$ is 53 years?
A) Only II
B) Only I
C) Both I and II
D) Neither I nor II
E) Either I or II

Answer

## Option C

Solution:
From statement I and II:
$P+Q+R+S+T=5 * 45=225$ years -

- --(1)
$P+Q=106$ years ---- (2)
$S+T=94$ years $-----(3)$
From (1), (2) and (3), we get
We get the age of $R$.
- How many people are there in the aeroplane ?
statement I: There are 45 females in the aeroplane.
statement II: 30\% of passengers are males and 10\% are children.
A) Either I or II
B) Only II
C) Only I
D) Neither I nor II
E) Both I and II


## Answer

## Option E

Solution:
From statements I and II:
Number of female passengers $=45$
There are $60 \%$ of the female in the aeroplane.
Total no. of passengers $=45 *(100 / 60)=$ 75

- The ratio between the present ages of the Rohit and Rina is $1: 3$. Find the present age of the Rina.
statement I: Difference between the present ages of the Pooja and Rohit is 22 years.
statement II:The present age of Pooja is 4 years less than thrice the present age of Rohit.
statement III:Difference between the present ages of the Rina and Rohit is 26 years.
A) Only III
B) Either I and II together or III alone.
C) All are together
D) Only I and II
E) None of the statements


## Answer

## Option B

## Solution:

From statement III: Age of Rina $=26 / 2$
*13 = 39 years
From statement I and II:
Rina $=3$ Rohit , Pooja - Rohit $=22$ and
3Rohit - Pooja $=4$
On solving, we get Rina $=39$ years

- What are the marks obtained by Sushil in Physics?
statement I: Marks obtained in Biology is as much more than that in Chemistry as the marks obtained in Chemistry is more than that in Physics.
statement II:The average marks obtained by Sushil in Physics, Biology and Chemistry are 65.
statement III: Marks obtained by Sushil in Biology is 6 more than that obtained in Physics.
A) None of these
B) Only I and II
C) All statements together
D) Only II and III
E) Only I


## Answer

## Option C

## Solution:

From statement I: Biology - Chemistry = Chemistry - Physics

From statement II: Physics + Chemistry + Biology $=3 * 65=195$
From statement III: Biology $=$ Physics +6 From all the above equations, Physics = 62

- What is the area of the hall?
statement I: Total cost of flooring the hall is Rs. 14,500.
statement II: Labour cost of flooring the hall is Rs. 3000.
statement III: Material cost of flooring per sq. metre is Rs. 150.
A) All statements together
B) Only II and III
C)Only I and II
D) None of these
E) Only III


## Answer

## Option A

## Solution:

Let the area of the hall be $x m^{\wedge} 2$.
Then, total material cost $=$ Rs. 150x
Labour cost = Rs. 3000
Therefore, Total cost $=150 x+3000=$ 14500
From this we get the value of $x$.
Hence, all the three statements are required.

- $A, B, C, D$ and $E$ are five friends. Their mean age is 18 . What is the age of $C$ ? Statement I: A's age is 18
Statement II: B's age is 2 years less than $E$ and $E$ 's age is 6 years less than $D$. Statement III: C's age is 6 years more than B's age and 4 years more than E's age.
A) Only III
B) Neither I and II nor III
C) Only I and III
D) All statements together
E) Either I and III or II alone


## Answer

## Option D

## Solution:

$A+B+C+D+E=90$
From statement I: $B+C+D+E=72$
From statement II: $B=E-2$ and $E=D-$ 6
so, $D=E+6$
From statement III: $D=B+6$ and $D=E+$ 4
Combining all three statements, we get the age of $C$.

- What is the area of the right angled triangle?
statement I: The perimeter of the triangle is 5 times of the base. statement II: The one of the angles of the triangle is 60deg.
statement III: The length of hypotenuse is 4 cm .
A) Neither I and III nor II
B) Either I and II or III
C) All statements together
D) Only II and III
E) Only I and III

Answer

## Option D

Solution:
From statement II and III are sufficient to answer the question.

Directions (1-10): In each of the following questions, a question is followed by two statements numbered I and II. Read both the statements and answer accordingly.

1. What is Bhavna's rank in a class of 44 students?
Statement I: Kartik whose rank is 17th in the class, is ahead of Preet by 6 ranks, Preet being 7 ranks ahead of Bhavna. Statement II: Suman is 26 ranks ahead of Bhavna and Priya is 6 ranks behind Bhavna while Savita stands exactly in the middle of Suman and Priya in ranks, her rank being 17.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option C

2. Who is paternal uncle of $P$ ?

Statement I: $P$ is brother of $L$, who is daughter of $Q$, who is sister of $N$, who is brother of $S$.
Statement II: $M$ is brother of $K$, who is husband of $L$, who is mother of $G$, who is sister of $P$.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the
question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option B

Solution:
In statement 1, only the maternal relationships are given.
In statement 2, $M$ is paternal uncle of $P$
3. Who amongst $P, Q, R, S, T$ and $U$ is the tallest?
Statement I: $P$ is taller than $R$ and $T$ but not as tall as $U$, who is taller than $Q$ and $S$.

Statement II: R is third in height in ascending order and not as tall as $U, P$ and $Q, Q$ being taller than $P$ but not the tallest.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option C

## Solution:

From statement $1, U$ is tallest
From statement 2 also $U$ is tallest: Order in ascending order is - $S / T, S / T, R P Q U$
4. Do $A, B$, and $C$ stand in a straight line? Statement I: $F$ is 2 km towards the south of $E$. $K$ is 5 km towards the west of $F$. $A$ is 2 km towards the north of $F$. B is 3 km towards the east of $E$ and $C$ is 4 km towards the east of $B$.
Statement II: A is 2 km towards the north of $L$. $K$ is 4 km towards the west of $L$. $S$ is 1 km towards the south of $K . M$ is 2 km towards the west of $S$. $B$ is 3 km towards the north of $M$ and $C$ is 2 km towards the north of $W$.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option A

Solution:
From statement $I, A, B, C$ stand in stand in a straight line
From statement II, Point C cannot be connected to the figure formed in which points $A$ and $B$ exists. So cannot be said about point $C$ that it lies straight to $A$ and $B$ or not.
5. Which direction is Preeti facing?

Statement I: If Gagan, who is currently facing east, turns 90 degree towards his right, he would face a direction exactly
opposite to the direction Preeti is facing.
Statement II: If Priya, who is currently facing south, turns left, walks 1 km and then takes a left turn again, she would face the same direction as Preeti.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option C

6. How is 'party' coded in the language? Statement I: 'going to a party' is coded as 'la fa qu tu' and 'for a party' is coded as 'fa me tu'.
Statement II: 'start the party' is coded as 'tu co ra' and 'going to start' is coded as 'qu cola'
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

Answer
Option E
Solution:
From both: party - tu
7. How is E related to F?

Statement I: D is son of $E$. $C$ is father of
$B$. $F$ is daughter of $A$. $G$ is only brother of
$A$. $B$ is sister-in-law of $G$ and sister of $D$.
Statement II: A is father of F. D is sister of $F$. $G$ is brother of $A$. $K$ is mother of $H$. $H$ is sister of G. C is only sister-in-law of $H$. $E$ is father-in-law of $C$.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

Answer

## Option B

Solution:
From I, B can be wife of $A$ or can be sister of G's wife.
From II, $E$ is grandfather of $F$.
8. 7 persons are sitting in a line facing north. Who is sitting second to left of $D$ ?
Statement I: H is sitting immediate left of $A$. Two persons are sitting between $A$ and B. 2 persons are sitting between $E$ and $D . D$ and $F$ are immediate neighbors. $E$ is somewhere left of $B$. Statement II: A is sitting second to left
of $C$. $F$ is third to right of $C$. $A$ is exactly between $H$ and $E$ such that one of them is at extreme end. $B$ and $C$ are immediate neighbors.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option B

## Solution:

From I, All people cannot be fitted in line From II, arrangement from left to right is H/E... A...H/E...C...B...D....F
9. $A$ is in which direction with respect to $B$ ? Statement I: A walks 1 km towards north-east from point $P$ and then before walking 2 km towards south, walks 2 km towards east. Before walking 3 km towards west, B walks 4 km towards north from point $P$.
Statement II: B walks 2 km towards south from point $P$ and then before moving 8 km towards north, walks 3 km towards west.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option A

10. How is 'he is smart' written in the code language?
Statement I: In the same code language 'I want to be smart' is written as 'jai gai pa mai ka', 'he needs money' is written as 'tik si sa' and 'she needs sweets' is written as 'ko sa ja'
Statement II: In the same code language 'what she want to be' is written as 'jai ka aaj gai ko', 'I want sweets what he needs' is written as 'ja sa pa ka aaj tik' and 'smart are gentle' is written as 'bo mai ali'.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option D

Solution:
From both statements also, code for 'is' is not known

Directions(1-10): In each of the following questions, a question is followed by two statements. Read all the statements and find that which statements are required to answer the question and answer accordingly.

1. There are two cylindrical rollers - bigger and smaller. How many rotations will the bigger roller take to flatten a stretch of land $(X)$ ?
The respective ratio of the radii of the bigger and the smaller roller is 7:3. Both the rollers are of the same length.
II. The smaller takes 63 rotations to flatten the stretch of $\operatorname{land}(X)$.
A) Either I or II
B) Neither I nor II
C) Only II
D) Only I
E) Both are required

## Answer

## Option E

Solution:
From both the statements, Radius of the larger roller $=7 x$ units Radius of the smaller roller $=3 x$ units Area flattened by smaller roller in 63 rotations $=2 * p i * 3 x * 1 * 63$
Therefore, $6{ }^{*} 63^{*} p i^{*} r^{*} l=2^{*} p i^{*} 7 x^{*} I^{*}$ $n$
=> $n=27$
2. What was the total compound interest on a sum after three years?
I. The interest after one year was Rs. 100 and the sum was Rs. 1000.
II. The difference between simple interest and compound interest on a sum of Rs. 1000 at the end of two years was Rs. 10.
A) Only II
B) Only I
C) Either I or II
D) Neither I nor II
E) Both I and II

## Answer

## Option C

Solution:
From statement I: $r=(100 * 100) / 1000=$ 10\%
$P=$ Rs. $1000, r=10 \%, t=3$ years
Hence, Cl can be described.
From statement II: SI $=\left(1000 * r^{*} 2\right) / 100=$ 20r
Cl = 1000[(1+(r/100)^2) - 1] Therefore,
$\mathrm{Cl}-\mathrm{SI}=1000\left[\left(1+(r / 100)^{\wedge} 2\right)-1\right]-20 r$
=> $r=10$
Hence, Cl can be determined.
3. What is the marked price of the pen ?
I. The marked price of the pen is $20 \%$ above the cost price of the pen.
II. When a discount of $25 \%$ is given on the marked price of the pen, the loss incurred is $10 \%$. The cost price of the pen is Rs. 300.
A) Both I and II
B) Only I
C) Neither I nor II
D) Only II
E) Either I or II

## Answer

## Option D

Solution:
From statement I: no result comes.
From statement II: $x^{*}(75 / 100)=$
(300*90)/100
=> $x=27000 / 75$
4. In how many days, men $A, B$ and $C$ together can finish the same piece of work
I. $A$ and $B$ can together finish the same piece of work in 6 days. $B$ and $C$ together can finish the same piece of work in 12 days. C and $A$ can finish the same piece of work in 10 days.
II. The time taken by A alone to finish the same piece of work is 24 days less than time taken by $C$ alone to finish the same piece of work.
A) Only I
B) Either I or II
C) Neither I nor II
D) Only II
E) Both I and II

## Answer

## Option A

Solution:
From statement I: $2(A+B+C)=(1 / 6)+$ $(1 / 12)+(1 / 10)$
From this we can find $(A+B+C)$ 's one day's of work.
From statement II: No such result can be concluded.
5. In a certain village is losing $12 \%$ of its water supply each day because of a burst water pipe, then what is the loss in rupees per day?
I. The cost to the village for every 24000 gallons of water lost is Rs. 25.
II. The daily water to the village is 700 m gallon.
A) Neither I nor II
B) Either I or II
C) Only II
D)Both I and II
E) None of these

## Answer

Option D
Solution:

From statement I: We can find the loss in rupees.
From statement II: Loss of water supply
= 700 million gallon * $12 \%$
Both the statements are required to answer the question.
6. Rohan and Mohan start walking towards each other simultaneously. What is the distance between them when they start?
I. 30 minutes after crossing each other they were 1200 m apart.
II. After crossing each other, Rohan reaches the starting point of Mohan in twice as much time as Mohan takes to reach the starting point of Rohan.
A) Both I and II
B) Only I
C) Only II
D) Either I or II
E) Neither I nor II

## Answer

## Option E

Solution:
Both the statements are not sufficient to answer the question.
7. What is the area of the circular field? I. The area of the largest square that can be inscribed in the given circular field is 3000 sq. cm.
II. The area of the smallest square in which the given circular field can be inscribed is 3600 sq. cm.
A) Only II
B) Either I or II
C)Neither I nor II
D) Both I and II
E) Only I

## Option B

## Solution:

Diagonal of the square $=$ Diameter of the circular field
From statement I: side of square = $\sqrt{ } 3000 \mathrm{~cm}$
diagonal of square $=\sqrt{ } 2 * \sqrt{ } 3000 \mathrm{~cm}$
Area of the circular field $=22 / 7^{*}$ (diagonal/2)^2
From statement II: side of a square = V3600
$=60 \mathrm{~cm}=$ diameter of circle
Area of circular field $=(22 / 7) * 30 * 30$
8. Find the average of five consecutive odd numbers.
I. The sum of the first two numbers is 5 more than the seventh number.
II. The difference of fifth number and the first number is 10.
A) Only I and II
B) Only I
C) Either I nor II
D)Neither I nor II
E) Both I and II

## Answer

## Option D

## Solution:

From both the statements, the values are hidden.
9. What is the present age of Tina ?
I. Tina is 5 years older than her brother.
II. The ratio of the present ages of her brother and Tina is $4: 5$ resp.
A) Only I
B) Only II
C) Both I and II
D) Either I or II
E) Neither I nor II

## Answer

## Answer

Option C
Solution:
From both the statements:
$=>5 x-4 x=5$
$\Rightarrow x=5$
Present age of Tina $=25$ years
10. Every student in a school was given one ticket for a function. The school was charged a total of $\$ 6000$ for these tickets, all of which were of equal value. What was the price of one ticket? I. If the price of each ticket had been \$2 more, the total bill would have increased by $40 \%$.
II. If the price of each ticket had been \$1 less, the total cost would have been
1,200 less.
A) Only I
B) Either I or II
C)Only II
D) Both I and II
E) Neither I nor II

## Answer

## Option B

Solution:
If the price of the one ticket is $p$, and the total number of tickets is $n$, then from the statement, $(6000 / n)=p$ From statement I : 8400/n = p+2 From statement II : (6000-1200)/n=p - 1

Directions (1-10): In each of the following questions, a question is followed by two statements numbered I and II. Read both the statements and answer accordingly.

1. What is the direction of point $A$ with respect to point K?
Statement I: Point A is 6 m to the west of point B. Point $C$ is 6 m to the south of
point B. Point $E$ is 4 m to the south of point D. Point $C$ is 8 m to the west of point D. Point $E$ is 10 m to the east of point $F$.
Statement II: Point I is 7 m to the north of point H . Point I is 3 n to the west of point J. Point H is 6 m to the west if point G. Point $F$ is 4 m to the north of point $G$. Point $K$ is $2 m$ to the south of point J.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option E

## Solution:

Point $A$ in statement I and $K$ in statement II. Point F in both statement s joins them to tell the direction.
2. What is the distance between the final positions of Arun and Amit?
Statement I: Arun starts from a point in north direction. After walking for 6 m he turns to right and walks 8 m to reach point $B$. Next he takes a right turn again and walks 5 m before turning to left. Next he walks 7 m and turns right. Leaks for 5 m and stops finally.
Statement II: Amit starts walking in south direction form point B. Walks for 8 $m$ and takes a left turn. Next walks for

10 M and turns to right, walks for and finally stops.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option D

Solution:
Since we do not know the final distance of Amit we cannot know the actual stopping point of Amit so cannot be determined from any of the statement or both together.
3. How is $B$ related to $A$ ?

Statement $I$ : $K$ is brother of $B . A$ is father of $E$. $A$ is son of $C$. $G$ is son of $D$. $H$ is sister of $G$.
Statement II: F is niece of $G$ and sister of
A. B is sister in law of G. D has only 3 children one of them being girl
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I
and II together are necessary to answer the question.

## Answer

## Option D

## Solution:

From both statements C and D are not linked in any way. If $c$ and $d$ are a couple then only $B$ is wife of $A$.
4. How is 'may' written in code language? Statement I: In that code language, 'she he we' is written as 'ip ap de' and 'they we may' is written as 'ip pu od'.
Statement II: 'she could we' is written as 'ap su ip' and 'we he should' is written as 'en de ip'.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option D

Solution:
Codes for they and may both are unknown, so can't be find for 'may'.
5. Who is tallest among - $A, B, C, D, E$ and F?
Statement I: C is taller than B and shorter than D. D is not the tallest. B is taller than E. F is taller than $C$ and also
A.

Statement II: F is taller than C and B both. $D$ is taller than $B$. $E$ is shorter than $B . A$ is shorter than $D$.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option A

Solution:
From I F is tallest.
From II F or D is tallest.
6. How is A related to F?

Statement I: $M$ is sister of $F$. B is mother of $M$. $D$ is father of $L$. $L$ is brother-in-law of $A$. $C$ is married to $D$ and has only 2 children one of them being B. Only one of the children of $D$ is married.
Statement II: H is niece of $G$ who is brother of $A$. $K$ is father of $A$. $B$ is only daughter-in-law of J. $G$ is son of J. F is sister of $H$.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the
question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option A

Solution:
From I: D and C have 2 children - B and L. Only 1 is married. B has children, so only $B$ is married. $L$ is not married so $A$ can only be husband of $B$ so father of $F$. From II: B is only daughter-in-law, can be wife of $A, G$ or any other son of $K$ and $J$ J. so $A$ can be father or uncle of $F$.
7. How is C related to A?

Statement I: C is married to D. F is sister of $A$. $H$ who is not married is son of $D . F$ is sister-in-law of $B$. $A$ is married to $B$. Statement II: $A$ is husband of $B . G$ is daughter of $B$. $F$ is sister of $A$. $D$ is father of $H$. $C$ is mother of $F$
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option B

Solution:
From $I$, gender of $A$ and $B$ is not known, so $A$ can be son or daughter of $C$. So $C$
mother/father of $A$
From II, C is mother of $A$
8. What is the direction of point $A$ with respect to point $G$ ?
Statement I: Point A is 5 m north of point $B$. Point $B$ is 7 m to west of point $C$. Point $E$ is $4 m$ west of point $D$. Point $G$ is somewhere south of point $E$. Point $C$ is 2 $m$ north of point $D$.
Statement II: Point A is 6 m west of point B. Point $C$ is 3 m to south of point B. Point $D$ is $2 m$ north of point $E$. Point $E$ 6 m west of point $G$. Point $D$ is 8 m to west of point $C$.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

Option C
Solution:
From I, $A$ is north-west of $G$
From II also, $A$ is north-west of $G$
9. Who is sitting opposite $E$ in a circle in which 6 people are sitting facing centre.
Statement I: E is sitting to immediate left of $A$. There are 2 people in between $A$ and $C$. $F$ is immediate neighbor of $C . D$ is sitting opposite $B$.

Statement II: B and E are sitting together. $A$ is sitting opposite $A$. F and $D$ are sitting together. $A$ and $B$ are not sitting together.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option A

Solution:
From I, F is sitting opposite E. From II, many arrangements are possible.
10. Who is sitting second to the left of $B$ in a line in which all people are facing north? ( $B$ is not sitting at any extreme end) Statement I: C is sitting to immediate left of $E$. There are 2 people between $A$ and $E$. $D$ and $A$ are immediate neighbors. There are 2 people between $B$ and $F$. $B$ and $E$ are not sitting together. Statement II: D is sitting to immediate left of $A$. There are 2 people between $A$ and $E$. $C$ is sitting second to left of $F$ A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option C

Solution:
From I, arrangement is D A B C E F
From II also, arrangement is D A B C E F
Q1. To find out the share of $Y$ out of Rs 1820 , which of the following statements is/are sufficient/necessary?
A. The share of $X$ is 1.8 times the combined share of $Y$ and $Z$.
B. The share of $Y$ is3/11 of the combined share of $X$ and $Z$.
C. The share of $Z$ is $1 / 60$ of the combined share of $X$ and $Y$.
(a) Statements $A$ and $B$ together are sufficient
(b) Statement $A$ and $C$ together are sufficient
(c) Statements B and C together are sufficient
(d) Either statement $B$ alone or statements $A$ and $C$ together are sufficient
(e) None of these

## S1.Ans.(e)

Sol.
Only statement B is sufficient

$$
\begin{aligned}
& \mathrm{Y}:(\mathrm{X}+\mathrm{Z})=3: 11 \\
& \therefore \mathrm{Y}=\frac{3}{(3+11=) 14} \times 1820=3 \times 130=\text { Rs. } 390
\end{aligned}
$$

Q2. A sum of money Rs 2550 is to be distributed among Knahiya, Varun and Rajneesh. What will be the share of Varun?
A. Knhiya's share is 1.5 times Varun's share.
B. Rajneesh's share is half the share of Knahiya and Varun together.
C. The share of Knahiya is Rs 340 more than Varun.
(a) Either A and B together or $A$ and $C$ together are sufficient
(b) Only A and B together are sufficient
(c) Only A and $C$ together are sufficient
(d) All statements are required
(e) Even all together are not sufficient

S2. Ans. (a)
Sol.
$\mathrm{A} \rightarrow \mathrm{K}: \mathrm{V}=3: 2$
$B \rightarrow K: V: R=3: 2: \frac{5}{2}=6: 4: 5$ (from $A$ )
$\mathrm{C} \rightarrow \mathrm{K}-\mathrm{V}=340$
$B y$ combining either $A$ and $B$ together or $A$ and C together, the share of Vijay can be calculated.

Q3. To find the temperature on Monday which of the following information is sufficient?
A. The average temperature for Monday, Tuesday and Wednesday was $38^{\circ} \mathrm{C}$.
B. The average temperature for Tuesday, Wednesday and Thursday was $43^{\circ} \mathrm{C}$.
C. The temperature on Tuesday and Thursday was $45^{\circ} \mathrm{C}$ each.
(a) Only $A$ and $B$ are sufficient
(b) Only B and C are sufficient
(c) A and either B or C are sufficient
(d) C and either A or B are sufficient
(e) All the three together are sufficient

## S3. Ans.(e)

Sol.
$\mathrm{A} \Rightarrow \mathrm{M}+\mathrm{T}+\mathrm{W}=114$
$\mathrm{B} \Rightarrow \mathrm{T}+\mathrm{W}+\mathrm{Th}=129$
$\mathrm{C} \Rightarrow \mathrm{T}=\mathrm{Th}=45$
From $A, B$ and $C$, we will get $M=30^{\circ}$

Q4. What is the ratio of the ages of Ravina and Shivani?
A. 6 years ago their ages were in the ratio $3: 4$.
B. After 2 years the younger one's age will be 85\% that of the older.
C. The sum of their ages is three less than twice the age of the older.
(a) Only A and C
(b) Any two of them
(c) Only A and B
(d) All together are required
(e) Any one of them is required

S4.Ans.(b)
Sol.
Let $R=$ age of Ravina, $S=$ age of Shivani
$\mathrm{A} \Rightarrow \mathrm{R}-6: \mathrm{S}-6=3: 4$
$\therefore 4 \mathrm{R}-3 \mathrm{~S}=6$
$B \Rightarrow R+2=0.85(S+2)$
$17 \mathrm{~S}-20 \mathrm{R}=6$
$C \Rightarrow R+S=2 S-3$
So solving any two of them, we get $R$ \& $S$.
Q5. The ratio between the present ages of the son and his father is $1: 3$. Find the present age of the father.
A. Difference between the present ages of the mother and her son is $\mathbf{2 2}$ years.
B. Difference between the present ages of the father and his son is $\mathbf{2 6}$ years.
C. The present age of mother is 4 years less than thrice the present age of her son.
(a) Only A and C together
(b) Either B alone or A and C together
(c) Any two of them
(d) All statements are required
(e) Question can't be answered even after using all the information
S5.Ans.(b)

Sol.
From (B), Age of the father $=\frac{26}{2} \times 13=39$ years
From statement, ( A ) and ( C ),
$\mathrm{F}=3 \mathrm{~S}, \mathrm{M}-\mathrm{S}=22$ and $3 \mathrm{~S}-\mathrm{M}=4$
Solving the above three equation, we get $M=39$ years.

Q6. P, Q and R secured 45\%, 50\% and 60\% marks respectively in Biology. T's marks in Biology are10 more than P's marks and 20 less than R'smarks. Find out the total marks of the four students.
A. For the students, total marks allotted for Biology is 800 .
B. Total of T's and P's marks is 190.
C. R has obtained 120 marks.
(a) $A$ and $B$ are sufficient
(b) Only C is sufficient
(c) Either A and B together or C alone is sufficient
(d) All together are necessary
(e) All $A, B$ and $C$ even together are not sufficient

S6. Ans.(c)
Sol. From statement itself, $\mathrm{T}=\mathrm{P}+10$ and $\mathrm{T}=\mathrm{R}-20$
we will get max. marks in Bio $=200$,
$A=$ we will get max. marks in $B l o=200$
Hence, $P, Q$ and $R$ 's marks can be calculated from the percentage given in the statement. $\mathrm{B} \Rightarrow \mathrm{T}+\mathrm{P}=190$
Here, By $A$ and $B$ we will get T's marks as well
$C \Rightarrow R=120$
From C and the statement, we can also find the marks for four students.
Hence, either $A$ and $B$ or $C$ alone are sufficient to find the answer.

Q7. What will be the ratio between Ramesh's and Anand's ages after 7 years.
A. The ratio between their present ages is $7: 8$.
B. The difference between their ages after eight years will be 5 years.
C. Four years ago the ratio between their ages was 5: 7.
(a) B only
(b) C only
(c) Any two of the three
(d) $A, B$ and $C$ are all required
(e) None of these

## S7.Ans.(c)

Sol.
$A \Rightarrow$ Ratio of their ages : 7z: 8 z
$B \Rightarrow z=5$
C $=\frac{7 z-4}{8 z-4}=\frac{5}{7}$
Hence, any two of three can give the desired answer.
Q8. What fractional part of the total strength of a high school did participate in a blood donation camp?
A. One-third of the boys participated in the camp.
B. Half of the girls participated in the camp.
C. The difference between the two participation groups is $40 \%$ of the no. of boys who participated in the camp.
(a) $A$ and $B$ are sufficient
(b) All statements are necessary
(c) All even together are not sufficient
(d) Any two statements are sufficient
(e) $A$ and $B$ or $B$ and $C$ are sufficient

S8. Ans.(b)
Sol. $B=$ boys, $G=$ girls
$A \Rightarrow B / 3$ boys participated
$B \Rightarrow G / 2$ girls participated
$C \Rightarrow$ Statement $A$ - statement $B=40 \%$ of statement $A$

Hence, all three are necessary to find the desired answer.

Q9. The cost of three pencils, four erasers and five paperweights is Rs 28. What is the cost of an eraser?
A. The cost of a paperweight is $\mathbf{2 5}$ paise less than that of the pencil and eraser together.
B. The cost of ten paperweights and 8 erasers is Rs 42.50.
C. The cost price of a pencil is $80 \%$ more than that of an eraser.
(a) Any two of them
(b) Either B alone or A and $C$ together
(c) Any of them
(d) All statements are required
(e) None of these

```
S9.Ans.(b)
Sol.
Let the cost of pencil, eraser and paper weight be }x,y\mathrm{ and }z\mathrm{ respectively,
3x+4y+5z=28 _n. (i)
A.}y+z-x=0.2
B. }10z+8y=42.50\mathrm{ or, }5z+4y=21.2
C. }x=\frac{9}{5
So, combining either B alone or A and C together are sufficient.
```

Q10. $X, Y$ and $Z$ secured 45\%, 50\% and 60\% marks respectively in Biology. W's marks in Biology is
12.5 more than X's marks and 4 less than Z's marks. Find out the individual marks of four students.
A. For the students total marks obtained for Biology is 311.5.
B. Total of W's and X's marks in Biology is 147.5.
C. Z has obtained 84 marks.
(a) A and B together
(b) Only C
(c) A and either B or C
(d) All together
(e) None of the above

## S10. Ans.(c)

Sol.
From the statement, $X=45 \%$ of total marks
$\mathrm{Y}=50 \%$ of total marks
$\mathrm{Z}=60 \%$ of total marks
and $\mathrm{W}=\mathrm{X}+12.5=\mathrm{Z}-4$
$A \Rightarrow X+Y+Z+W=650$
$B \Rightarrow W+X=147.5$
$C \Rightarrow Z=84$

Q11. What is the cost of 3 chairs, 4 tables and 5 benches?
A. The ratio of the cost of a chair and table is $3: 8$.
$B$. The ratio of the cost of a bench and a table is 5 :
3.
C. The cost of one chair and two tables is Rs 6000.
(a) $A$ and $B$ together are sufficient
(b) B and C together are sufficient
(c) Any two statements are sufficient
(d) All together are necessary
(e) All even together are not sufficient

```
S11.Ans.(d)
Sol.
A=>C:T = 3:8
B=>B:T=5:3
C = C + 2T = Rs. }600
Hence, all three statement are required to find the desired answer.
```

Q12. A company has two kinds of employeessupervisors and clerks. The total monthly salary of the employees is Rs 285000. What is the total number of employees in that company?
A. The ratio of the no. of supervisors to that of clerks in the company is $4: 5$.
B. The total monthly salary of all the supervisors is $\mathbf{2 8 \%}$ more than that of clerks.
C. $20 \%$ of the clerks' monthly salary is Rs 25000.
(a) Only A and B together
(b) Only A and C together
(c)Only C
(d) All statements are required
(e) Question can't be answered even after using all the information

## S12.Ans.(e)

Sol.
As per given statements, we can't find any solution even after combining all three statement and the question statement.

Q13. What is the share of Milan in the profit after the end of December 1998?
A. He has invested Rs 35,000 after 5 months of investing the money by Pravin.
B. Pravin has started business by invsting Rs 30,000 in February 1998.
C. Pravin got a profit of Rs 4400.
(a) Only C is sufficient
(b) All together are necessary
(c) $A$ and $C$ together are sufficient
(d) B and C together are sufficient
(e) All even together are not sufficient

## S13. Ans.(b)

Sol.
By combining $A$ and $B$ :
The ratio of investment of Milan and Pravin
$\Rightarrow 35,000 \times 6: 30,000 \times 11=7: 11$
$\therefore$ Total profit (with the help of Statement C)
$=\frac{18}{11} \times 4400=7200$
So, all statements are necessary.

Q14. Ritwik, Rohit and Dheeraj invest some money and buy a photocopy machine. They share the earnings in proportion to the amount invested by them. What is the share of Ritwik in the earning?
A. Total earning on one particular day is Rs 1496.
B. Rohit gets Rs 102 more than Ritwik and Rs 68 less than Dheeraj.
C. The earning of Rohit and Dheeraj together is Rs 1088.
(a) Only A and C
(b) Any two of them
(c) Only A and B
(d) All together are required
(e) Any one of them

## S14. Ans.(b)

Sol.
Let Ritwik, Rohit and Dheeraj get $x, y$ and zrespectively
$\mathrm{A} \Rightarrow x+y+z=1496$
$\mathrm{B} \Rightarrow y=x+102$ and $z=68+y,[$ or, $z=68+x+102]$
C $\Rightarrow y+z=1088$
Hence, combining any two of them, the shareof Ritwik can be calculated.

Q15. $P, Q$ and $R$ together invested an amount of $R s$ 42000 in the ratio of 4:3:7 for different periods of time. What was the amount of profit earned by them individually at the end of one year?
A. They invested for periods in the ratios of 1:2:1.
B. R's profit is Rs 5500 less than Q's investment.
C. Total amount of profit at the end of one year is Rs 8800.
(a) Only A and B together
(b) Only A and C together
(c) A and either B or C
(d) All statements are required
(e) Question can't be answered even after using all the information
\$15. Ans.(c)
Sol.
The given question gives the amounts of investment of $P, Q$ and $R$. which is $P=R s 12000, Q=R s 9000$ and $\$=\mathrm{R} s 21000$.
Statement (A)combined with the question's information will give us the ratio of their profits, ie. 46.7 , Now,combine this either with B or C and prefitearned by them can be determined.
Therefore, A and etther B or Cis sufficlent:

Directions (1-5): In each of the following questions, a question is followed by two statements numbered I and II. Read both the statements and answer accordingly.

1. $A$ and $B$ are two numbers. What is the ratio of A/B
Statement I: Their average is 5/2 times B Statement II: Their sum is 6
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option A

## Explanation:

From I : $(A+B) / 2=5 B / 2=>(A+B) / B=5=>A / B=4$
2. Average age of employees working in Bank is 30 years. Next year, 10 workers will retire. What will be the average age next year?
Statement I: There are 90 employees in bank Statement II: Retirement age is 60 year
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

Option E
Explanation:
Total age now $=90 * 30=2700$ (Using I)
Total age of outgoing people next year =60*10=600 (Using II)
New total age of remaining 80 people next
year $=2700-600+80=2180$
Average $=2180 / 80$
3. Fine the average of 7 consecutive odd numbers.
Statement I: The $5^{\text {th }}$ number exceeds the $1^{\text {st }}$ number by 8.
Statement II: The $4^{\text {th }}$ number is three times the first number.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option B

## Explanation:

Using II: $(x+6)=3 x$
find $x$, find all the 7 terms and hence average.
4. What is the difference between present ages of Amit and Sumit ?
Statement I: The ratio of the present age of Amit to that of Sumit six years ago is $2: 1$.
Statement II: The ratio of the present age of Amit and Sumit is $4: 3$.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option E

## Explanation:

Using both we will get two equations of two variables. Solve and get.
5. What is the profit earned by selling an article for Rs. 900?
Statement l: 25\% of profit would have been earned if it had been sold for Rs. 750.
Statement II: Selling price is $300 \%$ of the profit earned.
A) If the data in statement I alone is sufficient
to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option C

Explanation:
From I : Find CP using SP and Profit \%. Get profit
From II : Given SP =300/100 * profit =>
900=300/100* profit =>Profit $=$ Rs 300
Directions (6-10): In each of the following questions, a question is followed by three statements numbered I, II and III. Read all the statements and answer accordingly.
6. What is the measure of the diagonal of a rectangle?
Statement I: Length of the rectangle is 9 metre
Statement II: Area of the rectangle is 72
square metre
Statement III: Breadth of the rectangle is 8
metre
A) All I, II and III
B) Only I and II
C) Any two of the three
D) Only II
E) Only II and III

Statement I: He brought X at the rate of Rs 350 per kg
Statement II: He bought $Y$ at Rs 10 higher than the rate of $X$ per kg .
Statement III: He brought $Y$ at the rate of $R s$ 420 per kg
A) Only I and II
B) Only I and III
C) Any two of the three
D) All three together are sufficient
E) I, II and III together are not sufficient

## Answer

## Option E

Explanation:
We don't know the ratio in which the mixture is mixed. So we cannot find the CP and hence profit.
8. How many students are there in all in the institute of Computer, Electrical and Mechanical ?
Statement I: 20\% of the students study
Mechanical.
Statement II: The number of students studying Computer and Electrical are in the ratio of 5:3.
Statement III: The number of students studying Electrical is more than that of studying Mechanical by 100.
A) Only II and III
B) III and either I or II only
C) Any two of the three
D) AlI I, II and III
E) Question cannot be answered even with the information in all the three statements

## Answer

## Option D

## Explanation:

Using I and II, percentage of students in three institute can be found out. Using this data and III, we will get final answer.
9. What is the speed of the train ?

Statement I: The train crosses 300 metres long
platform in 45 seconds.
Statement II: The train crosses another stationary train of same length in 60 seconds.
Statement III: The train crosses a signal pole in
30 seconds.
A) Only III and either I or II
B) Any two of the three
C) Only II and either I or III
D) Only I and II
E) Only I and either II or III

## Answer

## Option E

Explanation:
Use Speed= $=D / T$; As speed in all case is same.
10. What is the cost of flooring a rectangular hall?

Statement I: The ratio of length and breadth of the hall is 5:4.
Statement II: The length of the hall is 50 metres and the cost of flooring is Rs. 1000 per square metre.
Statement III: The perimeter of the hall is 180 metres and the cost of flooring is Rs. 1000 per square metre.
A) Only I and II
B) Only II and III
C) Any two of the three
D) Only I and III
E) I and either II or III

## Answer

## Option C

Explanation:
Using any two statement, the length and breadth can be found. And Rate of flooring is also available.

Directions (1-5): In each of the following questions, a question is followed by three statements numbered I, II and III. Read all the statements and answer accordingly.

1. What is the principal amount?

Statement I: The Simple Interest obtained on
the principal after 2 years at $8 \%$ rate of interest is $R s 450$ less than the compound interest obtained on the same principal after 2 years at $8 \%$ per annum.
Statement II: The sum becomes double in 10 years at $6 \%$ per annum rate of simple interest. Statement III: The compound interest obtained on the principal amount is Rs 4540 after 2 years at the rate of $8 \%$ compounded annually.
A) Only I
B) AII I, II and III together
C) II and III together
D) Only I or III
E) I or II and III

## Answer

## Option D

## Explanation:

From 1: Pr^2/100^2 = 450. So P can be found. From III: using the compound interest formula, $P$ can be find out
2. What is the speed of boat in still water? Statement I: The boat can cover 12 km downstream distance in 2 hours.
Statement II: Speed of the stream is threefourth the speed of boat in still water. Statement III: The boat can cover 12 km upstream distance in 4 hours.
A) I and III together
B) Only II
C) I and II together
D) I and either II or III
E) Any combination of 2 statements can give the required result

## Answer

## Option E

Explanation:
Let speed of boat $=u$, and stream $=v$
From I: $u+v=12 / 2=6 \mathrm{~km} / \mathrm{hr}$
From II: $v=3 u / 4$
From III: $u-v=12 / 4=3$
So solving I and II ' $u$ ' can be found. Similarly by
solving II and III and by solving I and III
3. A person borrowed some money at compound interest for 2 years. What will be the amount required to return after 2 years?
Statement I: If the amount was borrowed at simple interest, then after 5 years Rs 600 was required to pay as simple interest.
Statement II: The rate of interest is $6 \%$ per annum
Statement III: The sum of money borrowed is 10 times the amount required to be paid as simple interest after 2 years.
A) II and I or III
B) Even all statements together cannot answer the question
C) II and III together
D) I and III together
E) All I, II and III

## Answer

## Option E

Explanation:
From I: SI after 5 yrs is rs 600, so after 1 yr = 600/5 = Rs 120
So after 2 years is $120 * 2=$ Rs 240
From III: $P=10^{*}$ SI after 2 years
So from I and III, $P=10^{*} 240=$ Rs 2400
Now $P=2400$ and from statement II, $r=6 \%$, so
Cl formula can be used to find the required amount
4. Shopkeeper gained how much by selling his products in November 2016?
Statement I: He earned 40\% more profit in December 2016 as compared to October 2016.
Statement II: In December 2016 he earned 10\% more profit than in November 2016.
Statement III: The total profit earned in
November 2016 and October 2016 was Rs
55,000.
A) Only I and III
B) Only II and III
C) Only I and II
D) All I, II and III
E) Even all statements together cannot answer
the question

## Answer

## Option D

## Explanation:

Using all statements:
Let profit earned in Oct and Nov is Rs x and Rs y resp.
So in $\operatorname{Dec}=140 / 100{ }^{*} x=1.4 x$
Given $x+y=55000$
From II - 1.4x = 110/100 * $y$
So we have 2 equations in 2 variables, $y$ can be found
5. In how many days 6 men and 5 women can complete the work working together?
Statement I: The ratio of efficiency of man to woman is $2: 1$
Statement II: 9 Women can complete threefive of the work in 15 days.
Statement III: 6 Men and a child together can complete $1 / 4^{\text {th }}$ work in 12 days while 6 women and the child together can complete two-third of the work in 16 days
A) I and either II or III
B) Any combination of 2 statements can give the required result
C) Only I and II
D) AlII, II and III
E) None of these

## Answer

## Option B

## Explanation:

From I and II: we have number of days in which 9 women can complete the work. So using efficiency we can find the number of days required by man to complete the work and then the required answer
From II and III: we have number of days in which 9 women can complete the work. So days required by child can be find out, and then by men.
From I and III: We get 3 equations in 3
variables - man, woman and child. So can be found.

Directions (6-10): In each of the following questions, a question is followed by two statements numbered I and II. Read both the statements and answer accordingly.
6. What is the age of $A$ in a group of 6 students $A, B, C, D, E$ and $F$ who average age is 16 years?
Statement I: Total age of $B$ and $D$ is 30 years
Statement II: Total age of $E$ and $F$ is 31 years.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option D

## Explanation:

From both statements also we do not know the age of both $A$ and $C$. So of $A$ cant be found
7. A person lent Rs 5000. At what rate percent per annum he lent the money?
Statement I: The difference between the simple interest and compound interest on same money is Rs 60.
Statement II: The simple interest obtained after 4 years is Rs 300
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option B

## Explanation:

In I, time is not given, so cannot be fount from I In II: $P=5000, t=4$ years and $S I=300$
8. How much discount percent is offered on the article?
Statement I: Profit earned by selling the article for Rs 230 after giving discount is Rs 30
Statement II: Had there been no discount the, 20\% would be the profit.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option E

Explanation:
From I: $S P=230$, profit $=30$, so $C P=200$
From II: when there is no discount, profit $=20 \%$
So profit $=20 / 100 * 200=\operatorname{Rs} 40$
So $M P=200+40=$ Rs 240
Now MP = 240, and $S P=230$, so discount\% can be found out
9. What is the speed of the train? Statement I: The train another train running in the same direction in 12 minutes.
Statement II: The train crosses a signal in 8 minutes.
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient
to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

Option D
Explanation:
In I, length and speed of second train is required which is not given
10. A sum of money is invested. What is the compound interest obtained after 2 years?
Statement I: The different between the simple and compound interest on a sum of Rs 1200 is Rs 30 after 2 years
Statement II: The interest obtained after 1 year on Rs 1200 is Rs 100
A) If the data in statement I alone is sufficient to answer the question.
B) If the data in statement II alone is sufficient to answer the question.
C) If the data either in statement I alone or statement II alone are sufficient to answer the question.
D) If the data given in both I and II together are not sufficient to answer the question.
E) If the data in both the statements I and II together are necessary to answer the question.

## Answer

## Option C

Explanation:
From I: $1200^{*} r^{\wedge} 2 / 100^{\wedge} 2=30$. So $r$ can be find out, and then Cl
From II: $r=100^{*} 100 / 1200$, so Cl can be find out

Directions: In each of the following questions, a question is followed by three statements. Read all the statements and find that which statements are
required to answer the question and answer accordingly.

1. How much profit did $B$ get at the end of the year in the business by $A, B$ and $C$ ?
I. C invested Rs.5000/- for six months, his profit was $3 / 2$ times that of B's and his investment was three times that of $A$.
II. A and B invested for two year and in the proportion of 1:2 respectively.
III. A , B and C together got Rs.700/- as profit at the end of the year. I
A) Only I and III are sufficient
B) Only I and II are sufficient
C) I, II and III not sufficient
D) Either I or II and III sufficient
E) None

## Answer

## Option C

## Solution:

I, II and III together not sufficient to answer the question.
2. The ratio between the present ages of the son and his mother is $5: 2$. Find the present age of the mother.
I. Difference between the present ages of the father and his son is 28 years.
II. Difference between the present ages of the mother and her son is 21 years.
III. Difference between the present ages of father and his daughter is 35years
A) Only I is sufficient
B) I and II are sufficient
C) II and III are sufficient
D) Only II is sufficient
E) None

## Answer

## Option D

Solution:
From II Diff of mother and sons age is 21.
Then 3 (5-2) 21
5 ? ==>35years
3. In a company there are managers and clerks. The total monthly salary of the employees is Rs3.5Lakh. What is the total number of employees in that company?
I. The ratio of the no. of managers to that of clerks in the company is $3: 2$.
II. The total monthly salary of all the managers is $35 \%$ more than that of clerks.
III. 25\% of the clerks' monthly salary is Rs 26,000.
A) Only I and III are sufficient
B) Only I and II are sufficient
C) Either I or II and III sufficient
D) I, II and III not sufficient
E) None

## Answer

## Option D

## Solution:

I, II and III together not sufficient to answer the question.
4. In how many days 10 men can finish the work? I. 10 women finish the work in 6 days.
II. 10 men and 10 women finish the work in 24/7 days.
III. If 10 women work 3 days and after that 10 men are deployed to work for women, the rest work is finished in 4 days.
A) I and II are sufficient
B) I and III are sufficient
C) Any two of three are sufficient.
D) II and III are sufficient.
E) None

## Answer

## Option C

## Solution:

From I and II, 10 men's work in 1 day = (7/24 1/6) $=1 / 8$
10 men can finish the work in 8 days.
From II and III
$(1 / x+1 / y)=7 / 24$
$(3 / x+4 / y)=1$
=> y = 8 days
From I and III $(3 / 6+4 / y)=1=>y=8$ days.
5. How much time will the train A take to cross another train B running in opposite direction?
I. Length of two trains together is 650 m
II. Ratio of the speed of trains $A$ and $B$ is 4:5
III. Train B crosses a signal pole in 8sec.
A) Only I and II are sufficient
B) I, II and III are not sufficient
C) Only I and II are sufficient
D) Only I and III are sufficient
E) None

## Answer

## Option B

## Solution:

I, II and III are not sufficient
6. $P, Q$ and $R$ are three friends dividing Rs. 310 among themselves. What will be the share of Q?
I. Q gets Rs. 16 more than $R$
II. P gets Rs. 3 more than $R$
III. P gets Rs. 13 less than $Q$
A) Only I and II are sufficient
B) Only II and III are sufficient
C) Any two are sufficient
D) All are sufficient
E) None

Answer
Option C
Solution:
$P+Q+R=310$
From $I, Q=16+R$
From II, $P=3+R$
From III, $P=Q-13$
Solving above equation we can find $Q$ 's share.
7. What is the rate of interest per annum ?
I. The Cl in 8 years is more than the amount.
II. The difference between SI and Cl in 2 years is Rs. 450
III. An amount double itself at SI in 15 years
A) Only I and II are sufficient
B) Only III is sufficient
C) Only II and III are sufficient
D) All are not sufficient
E) None

Answer
Option B
Solution:
From III :
Principal $=P$, Amount $=2 P$
Interest $=2 P-P=P$
$S I=P=P^{*} R^{*} 15 / 100=>R=15 \%$
8. What is the share of $B$ out of total Rs 3080 ?
I. The share of $A$ is 1.8 times the combined share of $B$ and $C$.
II. The share of $B$ is $5 / 9$ of the combined share of $A$ and $C$.
III. The share of $C$ is $1 / 6$ of the combined share of $A$ and $B$.
A) Only III is sufficient
B) Only I is sufficient
C) Only II is sufficient
D) All are not sufficient
E) None

## Answer

## Option C

Solution:
$B:(A+C)=5$ :
$B=5 /(5+9) 14$ * 3080
$5 * 220=1100$.
9. What is the ratio of the ages of Ram and Ravi? I. 6 years ago their ages were in the ratio $3: 4$. II. After 2 years the younger one's age will be $85 \%$ that of the older.
III. The sum of their ages is three less than
twice the age of the older.
A) Only II and III are sufficient
B) Any two of them is sufficient
C) Only I and II are sufficient
D) All are not sufficient
E) None

## Answer

## Option B

Solution:
From / Ram-6 / Ravi - $6=3 / 4$
4Ram - 3Ravi=6
From II Ram +2= 85/100(Ravi+2)
17 Ravi-20Ram =6
From III Ram + Ravi $=2$ Ravi -3
Solving any two of them we get the ratio.
10. What is the circumference of the semi-circle?
I. The difference between the length and the breadth of a parallelogram is 15 cm .
II. The area of the semi-circle is half the area of the parallelogram.
III. The length of the parallelogram is 2.5 times the radius of the circle.
A) Only II and III are sufficient
B) Only III is sufficient
C) All are not sufficient
D) Only I is sufficient
E) None

## Answer

Option C
Solution: All are not sufficient
Directions: In each of the following questions, a question is followed by two or three statement. Read all the statements and find that which statements are required to answer the question and answer accordingly.

1. What is the volume of the cylindrical tank ? Statement I: Diameter of the base is equal to the height of the tank.
Statement II: Height of the tank is 20 m .
Statement III: Area of the base is 320 sq. m .
A) Only I and III.
B) Only I
C) Only III
D) Any of the two
E) None of these

## Answer

## Option D

## Solution:

From I and II:
Height $=20 \mathrm{~m}$ radius $=10 \mathrm{~m}$
Then ,Volume of the cylindrical tank $=(22 / 7)$
*10 *10 *20 sq. m
From II and III :
Volume $=$ Area of the base $*$ Height $=320 * 20$
sq. $m$
From I and III:
Area of the base $=(22 / 7) *$ radius $\wedge 2=320$
we can calculate radius then, from I diameter is equal to the height so $2^{*}$ radius $=$ height Now we can calculate volume of the cyndrical tank.
Hence, Any of the two is enough to get the volume.
2. What is the selling price of the camera if no discount is offered ?
Statement I: Cost price of the camera is
Rs. 10,000 .
Statement II: Profit earned was 20\%.
Statement III: Had 20\% discount been offered on selling price the profit would have been Rs. 700.
A) Only III
B) Only II and III
C) Only I and II
D) All of these
E) Any two of these

## Answer

## Option E

## Solution:

From I and II :
SP can be calculated.
From II and III:
Let $c p=x$
$s p=(120 x) / 100=6 x / 5$

After ,20\% discount on $s p=$ New $s p=$ (80/100)*6x/5
From I and III:
Let $s p=x$
After 20\% discount,
$s p=8 x / 10$
$\Rightarrow 8 x / 10-10,000=700$
sp can be calculated .
Hence, from any of two options, we can get the value of $s p$.
3. How many students failed in class 6 ?

Statement I: 400 students passed in class .
Statement II: Number of students failed in class 6 is $10 \%$ of those of failed in class 7?
Statement III: $75 \%$ of the students who appeared in examination have passed either in class 8.
A) Only II and III
B) Only I and II
C) Only III
D) None of these
E) All of these

Answer

## Option D

## Solution:

Data is not sufficient to find the number of failed students in class 6.
4. What is the rate of interest p.c.p.a? Statement I: Simple Interest accrued in two years on the same amount at the same rate of interest is Rs. 44,000.
Statement II: The amount becomes Rs. 15,400 in two years on simple interest.
Statement III: Difference between the compound interest and simple interest earned in two years on the amount invested is Rs. 120.
A) Only I and II
B) Only II and III
C) Only II
D) Only I and III
E) All of the above

## Answer

## Option D

Solution:
From Statement I:
(PR * 2 ) / 100 = 44,000
$P R=22,00,000$
From Statement II:
(PR1 * 3 ) / $100=15,400-P$
From Statement III:
Let Amount be Rs.P and rate be R p.c.p.a. then,
Difference $=\left(P R^{\wedge} 2\right) / 10000=120$
By dividing equations of Statement I and Statement III, we get rate of interest .
5. Two persons $P$ and $Q$. $P$ bought some copies and some books from a shopkeeper. The shopkeeper charged extra Rs. 15 , though he was getting a profit of Rs. 60/copy and Rs 350/book. For what price did $P$ and $Q$ sell the book if they both earned a profit of 50\%?
Statement I: The selling price of 4 copies and 2 books was Rs. 600.
Statement II: P and Q sold equal number of copies and books.
Statement III: They invested a total amount of
Rs.10,000 on copies and Rs.15,000 on books.
A) Only II
B) None of the above
C) Only II and III
D) Only I and II
E) All of these

## Answer

## Option B

## Solution:

From the statements we are not able to get the information of either cp or sp.
6. In how many days will Mohit alone complete the work?
Statement I: Soham alone can do the work in

20 days .Mohit is $10 \%$ more efficient than Soham and Rita. 30\% of work is done by Mohit ?
Statement II: Soham and Mohit together can finish the work in 8(2/11) days, Mohit and Rita in $7(1 / 5)$ days and, Rita and Soham can do the same work in 6(2/3) days .
A) Only II
B) Both I and II
C) Either I or II
D) Neither I nor II
E) Only I

## Answer

## Option A

## Solution:

From Statement II :
(Soham + Mohit + Rita )'s 1 day's work = 37 /180
Mohit's 1 day's of work $=37 / 180-3 / 20=18$
days
7. What is the population of city $X$ ? Statement I: The population of city $X$ is $80 \%$ of that of city $Y$.The difference of population of city $X$ and city $Y$ is 312500 .
Statement II: The ratio of the population of males and females in city $X$ is 27:23 and the difference between their population is 1,00,000.
A) Only II
B) Either I or II
C) Only II
D) Both I and II
E) None of the above

## Answer

## Option B

## Solution:

From Statement I:
city $Y=100 x / 80=5 x / 4$
Therefore,
$5 x / 4-x=3,12,500$
=> $x=12,50,000$
From Statement II:
$27 x-23 x=1,00,000$
$\Rightarrow>=25,000$
Therefore,
$27 x+23 x=50 x=12,50,000$
8. Raman mixed two types of wheat for selling the mixture in his shop. What is the quantity (in kg ) of the first type wheat in the mixture ?
Statement I: The price of the second type of wheat is Rs. $50 / \mathrm{kg}$. The difference between the quantity of first type of wheat and second type of wheat in the mixture is 3 kg .
Statement II: The price of the first type of wheat is Rs. $47 / \mathrm{kg}$. Raman earned a profit of $20 \%$ by selling the mixture at the rate of Rs.
$57.60 / \mathrm{kg}$.
A) Neither I nor II
B) Either I or II
C) Both I and II
D) Only I
E) Only II

## Answer

## Option C

Solution:
From both the statements :
Let the quantity of first wheat and second wheat be $x \mathrm{~kg}$ and ( $x-3$ ) kg resp.
Quantity of the mixture $=(2 x-3) k g$
Therefore,
$(x * 47+(x-3) * 50) *(120 / 100)=(2 x-3) *$
57.60
$=>282 x+300 x-900=576 x-864$
$\Rightarrow x=6 \mathrm{~kg}$
9. What is the monthly salary of Himesh ?

Statement I: The salary of Himesh increased by $33(1 / 3) \%$ two years ago and $25 \%$ a year ago. The difference in increase was Rs. 32000/3. Statement II: Himesh spends 18\% of his salary on grocery and $14 \%$ of it on sports. $14 \%$ of total salary is spent on transportation and
entertainment . (3/10)th part of the total salary is spent on house rent and thereafter he saves Rs. 32000.
A) Only I
B) Either I and II
C) Neither I nor II
D) Both I and II
E) Only II

## Answer

## Option B

## Solution:

From Statement I:
If the monthly salary be Rs. $x$, then
$x(100 / 3-25) \%=32000 / 3$
$\Rightarrow x(25 / 300)=32000 / 3$
$\Rightarrow x=$ Rs. 1,28,000
From Statement II:
Total expenditure of Himesh $=(18+14+13)$
$/ 100+(3 / 10)=3 / 4$
Remaining $=1-(3 / 4)=1 / 4$
Therefore,
Total salary $=4 * 32000=$ Rs. 1,28,000
10. How many students are there in the class? Statement I: If two students weighing 44 kg and 52 kg leave the class and are replaced by two students weighing 64 kg and 56 kg .The average weight of the class increases by 1.2 kg

Statement II: The average weight of the class is
Rs. 52 kg .
A) Only II
B) Either I or II
C) Neither I nor II
D) Both I and II
E) Only I

## Answer

## Option D

## Solution:

From Statement I:
$52 x-44-52+64+56=53.6 x$
$\Rightarrow 52 x+24=53.2 x$
$\Rightarrow x=20$
From Statement II:
Total weight $=52 x \mathrm{~kg}$
Directions: In each of the following questions, a question is followed by two or three statement. Read all the statements and find that which statements are required to answer the question and answer accordingly.

1. Find the length of the train travelling at uniform speed?
I. The length of the train 400 m crossing the bridge in 30sec.
II. The train does not stop at any station.
III. The train overtook a car whose speed is 45kmph in 60 seconds.
A) Only I
B) Only I and II
C) Only II
D) Only I and III
E) None of the above

## Answer

## Option D

Solution:
D) Only I and III
2. In how many days can 12 men and 4 women together complete the piece of work?
I. 3 women complete the piece of work in 8days.
II. 5 men complete the piece of work in 10days .
III. 10 men complete the piece of work in

5days.
A) Any two
B) AIII, II and III
C) Only I and II
D) Only I and either II and III
E) None of the above

## Answer

Option D
Solution:
From I: We get 1 woman's 1 day's of work.
From II and III: We get 1 man' 1 day's of work.
3. What is the rate of interest?
I. Simple interest earned per annum is

Rs.3,000.
II. An amount doubles itself in 5 years on simple interest.
III. Difference between the compound interest and the simple interest earned on a certain amount in 3 years is Rs. 600.
A) Any of the two
B) Only III
C) Only II or only I and III
D) Either I or III
E) None of the above

## Answer

## Option C

## Solution:

C) Only II or only I and III
4. What is the two digit number ?
I. The number obtained by interchanging the digits of the number is greater than the original number by 10.
II. Difference between the two digits of the number is 2.
III. Sum of the two digits of the number is 15 .
A) Only I
B) Only III
C) III and either I and II
D) All the three
E) None of the above

## Answer

## Option C

Solution:
Let the number be $10 x+y$.
From I: $(10 y+x)-(10 x+y)=10--(1)$
From II: $y-x=2--(2)$
From III: $x+y=15-$ (3)
5. What is the capacity of the cylindrical tank?
I. Area of the base is 500sq. m .
II. Diameter of the base is equal to the height of the tank.
III. Height of the cylinder is 20 m .
A) Only I and II
B) Only II and III
C) All the three
D) Only III
E) Any of the two

## Answer

## Option E

Solution:
From I: Area of the base $=p i^{*} r^{*} r=500$
From II: Diameter = Height /2
From III: Height $=20 \mathrm{~m}$
6. What is the three- digit number?
I. The first and the third digit is 6 .
II. The three digit number is divisible by 9.
A) Neither I nor II
B) Only I
C) Both I and II
D) Only II
E) None of the above

## Answer

## Option C

## Solution:

From I: Number will be 666 which is exactly
divisible by 9 and gives result as 74 .
From II: Divisor is 9.
Both are required to get the result.
7. What is the salary of $C$, in a group of $A, B, C$ and $D$ whose average salary is Rs.20,000?
I: Average salary of $A$ and $B$ is Rs. 8000.
II: C's salary is 2 times of B's salary?
A) Only I
B) Only II
C) Both I and II together
D) Either I or II
E) None of the above

## Answer

## Option E

## Solution:

Both the statements are not sufficient to know the salary of $C$.
8. What is the ratio of the number of freshers to the number of students in the college?
I: The ratio of males and females in the college
is 2:5.
II: There are total 1500 females freshers in the college
A) Only II
B) Either I or II
C) Neither I nor II
D) Both I and II together
E) Only I

## Answer

## Option C

## Solution:

Data is not sufficient to find the ratio .
9. What is the profit\%/loss\% incurred by selling an article for Rs.22,000?
I: The difference between the cost price and the selling price is Rs.8,500.
II: The ratio between the selling price and the cost price of the article is 5:4 respectively.
A) Only II
B) Either I or II
C) Only I
D) None of the above
E) Both I and II together

## Answer

## Option B

## Solution:

From I: $C P=22000-8500=13,500$
we can determine the profit\%.
From II: CP of the article $=(4 / 5) * 22000=$
17,600
Profit=22000-17600=4400
Profit\% $=(4400 / 17600) * 100=25 \%$
10. What is the respective ratio of initial investments of $P$ and $Q$ ?
I: The initial investment of $Q$ was Rs. 12000. II: P started the business by investing a certain amount and he invested for the whole year. $Q$ joined $P$ after 4 months start the start of the business and invested for the rest of the year. The profit earned by $P$ and $Q$ are in the respective ratio 7:8.
A) Both I and II
B) Only II
C) Only I
D) Neither I nor II
E) Either I or II

## Answer

## Option A

## Solution:

Let P's initial investment $=$ Rs. $x$
From both the statements,
Ratio of the equivalent capitals of $P$ and $Q$ for 1 month.
$=\left(x^{*} 2\right):(12000 * 8)$
$=>2 x /(12000 * 8)=7 / 8$
Directions: In each of the following questions, a question is followed by two or three statement. Read all the statements and find that which statements are required to answer the question and answer accordingly.

1. How much time will Train P take to cross Train $Q$ (from the moment they meet) running in opposite directions (towards each other) ? statement I: The respective ratio of speeds of Train $P$ and Train $Q$ is $3: 4$. The sum of the lengths of Train P and Train $Q$ is 700 metre. statement II: Train P can cross a signal pole in 12 seconds. It can cross 600 metre long station in 25 seconds.
A) Only I
B) Both I and II
C) Only II
D) Either I or II
E) Neither I nor II

## Answer

## Option E

Solution:
From statement I:
Relative speed $=3 x+4 x=7 x$ units
Sum of Length of trains $=700 \mathrm{~m}$
Required time $=700 / 7 x=$ no result
From statement II:
speed of train $P=x / 12=(x+600) / 25$
$\Rightarrow 25 x=12 x+7200$
$\Rightarrow 13 x=7200$
$\Rightarrow>=7200 / 13$
2. What is the area the isosceles triangle A ? statement I: The length of the side opposite the single largest angle in the triangle is 8 cm . statement II: The perimeter of triangle $X$ is 20 cm .
A) Only II
B) Only I
C) Neither I nor II
D) Both I and II
E) Either I or II

## Answer

## Option D

## Solution:

In a triangle, the side opposite the largest angle will be the longest. Correspondingly, the side opposite the smallest angle will be the shortest.
3. What is the ratio between the two numbers a and $b$ ?
statement I: $50 \%$ of a is $25 \%$ of 80 .
statement II: $20 \%$ of $b$ is $10 \%$ of 100 .
A) Both I and II
B) Only I
C)Only II
D) Either I or II
E) Neither I nor II

## Answer

## Option A

## Solution:

Both I and II required together.
4. What is the age of $R$, in a group of $P, Q, R, S$ and $T$ whose average age is 45 years?
statement I: Average of the age of $S$ and $T$ is
47 years?
statement II: Average of the age of $P$ and $Q$ is
53 years?
A) Only II
B) Only I
C) Both I and II
D) Neither I nor II
E) Either I or II

## Answer

## Option C

## Solution:

From statement I and II:
$P+Q+R+S+T=5$ * $45=225$ years --- (1)
$P+Q=106$ years ---- (2)
$S+T=94$ years $-----(3)$
From (1), (2) and (3), we get
We get the age of $R$.
5. How many people are there in the aeroplane ? statement I: There are 45 females in the aeroplane.
statement II: $30 \%$ of passengers are males and $10 \%$ are children.
A) Either I or II
B) Only II
C) Only I
D) Neither I nor II
E) Both I and II

## Answer

## Option E

Solution:
From statements I and II:
Number of female passengers $=45$
There are 60\% of the female in the aeroplane.
Total no. of passengers $=45 *(100 / 60)=75$
6. The ratio between the present ages of the Rohit and Rina is $1: 3$. Find the present age of the Rina.
statement I: Difference between the present ages of the Pooja and Rohit is 22 years.
statement II:The present age of Pooja is 4 years less than thrice the present age of Rohit. statement III:Difference between the present ages of the Rina and Rohit is 26 years.
A) Only III
B) Either I and II together or III alone.
C) All are together
D) Only I and II
E) None of the statements

## Answer

## Option B

## Solution:

From statement III: Age of Rina $=26 / 2$ *13 $=39$
years
From statement I and II:
Rina $=3$ Rohit, Pooja - Rohit $=22$ and 3 Rohit Pooja $=4$
On solving, we get Rina $=39$ years
7. What are the marks obtained by Sushil in Physics?
statement I: Marks obtained in Biology is as much more than that in Chemistry as the marks obtained in Chemistry is more than that in Physics.
statement II:The average marks obtained by Sushil in Physics, Biology and Chemistry are 65. statement III: Marks obtained by Sushil in Biology is 6 more than that obtained in Physics.
A) None of these
B) Only I and II
C) All statements together
D) Only II and III
E) Only I

## Answer

## Option C

## Solution:

From statement I: Biology - Chemistry = Chemistry - Physics
From statement II: Physics + Chemistry + Biology $=3 * 65=195$
From statement III: Biology $=$ Physics +6
From all the above equations, Physics $=62$
8. What is the area of the hall?
statement I: Total cost of flooring the hall is Rs. 14,500 .
statement II: Labour cost of flooring the hall is Rs. 3000.
statement III: Material cost of flooring per sq. metre is Rs. 150.
A) All statements together
B) Only II and III
C)Only I and II
D) None of these
E) Only III

## Answer

## Option A

Solution:
Let the area of the hall be $x m^{\wedge} 2$.
Then, total material cost $=$ Rs. 150x
Labour cost = Rs. 3000
Therefore, Total cost $=150 x+3000=14500$
From this we get the value of $x$.
Hence, all the three statements are required.
9. $A, B, C, D$ and $E$ are five friends. Their mean age is 18. What is the age of $C$ ?
Statement I: A's age is 18
Statement II: B's age is 2 years less than $E$ and $E$ 's age is 6 years less than $D$.
Statement III: C's age is 6 years more than B's age and 4 years more than E's age.
A) Only III
B) Neither I and II nor III
C) Only I and III
D) All statements together
E) Either I and III or II alone

## Answer

## Option D

Solution:
$A+B+C+D+E=90$
From statement I: $B+C+D+E=72$
From statement II: $B=E-2$ and $E=D-6$
so, $D=E+6$
From statement III: $D=B+6$ and $D=E+4$
Combining all three statements, we get the age of $C$.
10. What is the area of the right angled triangle ?
statement I: The perimeter of the triangle is 5 times of the base.
statement II: The one of the angles of the triangle is 60deg.
statement III: The length of hypotenuse is 4 cm.
A) Neither I and III nor II
B) Either I and II or III
C) All statements together
D) Only II and III
E) Only I and III

## Option D

## Solution:

From statement II and III are sufficient to answer the question.

Directions(1-10): In each of the following questions, a question is followed by two statements. Read all the statements and find that which statements are required to answer the question and answer accordingly.

1. There are two cylindrical rollers - bigger and smaller. How many rotations will the bigger roller take to flatten a stretch of land $(X)$ ? The respective ratio of the radii of the bigger and the smaller roller is 7:3. Both the rollers are of the same length.
II. The smaller takes 63 rotations to flatten the stretch of land(X).
A) Either I or II
B) Neither I nor II
C) Only II
D) Only I
E) Both are required

## Answer

## Option E

Solution:
From both the statements,
Radius of the larger roller $=7 x$ units
Radius of the smaller roller $=3 x$ units
Area flattened by smaller roller in 63 rotations
$=2 * p i * 3 x * 1 * 63$
Therefore, 6 * 63*pi*r*I $=2 * p i * 7 x * I * n$ => $n=27$
2. What was the total compound interest on a sum after three years?
I. The interest after one year was Rs. 100 and the sum was Rs. 1000.
II. The difference between simple interest and compound interest on a sum of Rs. 1000 at the end of two years was Rs. 10.
A) Only II
B) Only I
C) Either I or II
D) Neither I nor II
E) Both I and II

## Answer

## Option C

Solution:
From statement $I: r=(100 * 100) / 1000=10 \%$
$P=R s .1000, r=10 \%, t=3$ years
Hence, Cl can be described.
From statement II: SI $=\left(1000 * r^{*} 2\right) / 100=20 r$
$C I=1000\left[\left(1+(r / 100)^{\wedge} 2\right)-1\right]$ Therefore, $C I-S I=$ 1000[(1+(r/100)^2) - 1] - 20r
=> $r=10$
Hence, Cl can be determined.
3. What is the marked price of the pen ?
I. The marked price of the pen is $20 \%$ above the cost price of the pen.
II. When a discount of $25 \%$ is given on the marked price of the pen, the loss incurred is $10 \%$. The cost price of the pen is Rs. 300 .
A) Both I and II
B) Only I
C) Neither I nor II
D) Only II
E) Either I or II

## Answer

Option D
Solution:
From statement I: no result comes.
From statement II: $x^{*}(75 / 100)=(300 * 90) / 100$
$\Rightarrow x=27000 / 75$
4. In how many days, men $A, B$ and $C$ together can finish the same piece of work
I. $A$ and $B$ can together finish the same piece of work in 6 days. $B$ and $C$ together can finish the same piece of work in 12 days. $C$ and $A$ can finish the same piece of work in 10 days . II. The time taken by $A$ alone to finish the same piece of work is 24 days less than time taken by $C$ alone to finish the same piece of work.
A) Only I
B) Either I or II
C) Neither I nor II
D) Only II
E) Both I and II

## Option A

## Solution:

From statement I: $2(A+B+C)=(1 / 6)+(1 / 12)+$ (1/10)
From this we can find $(A+B+C)$ 's one day's of work.
From statement II: No such result can be concluded.
5. In a certain village is losing $12 \%$ of its water supply each day because of a burst water pipe, then what is the loss in rupees per day?
I. The cost to the village for every 24000 gallons of water lost is Rs. 25.
II. The daily water to the village is 700 m gallon.
A) Neither I nor II
B) Either I or II
C) Only II
D)Both I and II
E) None of these

## Answer

## Option D

## Solution:

From statement I: We can find the loss in rupees.
From statement II: Loss of water supply $=700$ million gallon * $12 \%$
Both the statements are required to answer the question.
6. Rohan and Mohan start walking towards each other simultaneously. What is the distance between them when they start?
l. 30 minutes after crossing each other they were 1200 m apart.
II. After crossing each other, Rohan reaches the starting point of Mohan in twice as much time as Mohan takes to reach the starting point of Rohan.
A) Both I and II
B) Only I
C) Only II
D) Either I or II
E) Neither I nor II

## Answer

Option E
Solution:
Both the statements are not sufficient
to answer the question.
7. What is the area of the circular field?
I. The area of the largest square that can be inscribed in the given circular field is 3000 sq. cm.
II. The area of the smallest square in which the given circular field can be inscribed is 3600 sq. cm.
A) Only II
B) Either I or II
C) Neither I nor II
D) Both I and II
E) Only I

## Answer

## Option B

Solution:
Diagonal of the square $=$ Diameter of the circular field
From statement I: side of square $=\sqrt{3000} \mathrm{~cm}$
diagonal of square $=\sqrt{ } 2 * \sqrt{ } 3000 \mathrm{~cm}$
Area of the circular field $=22 / 7$ *
(diagonal/2)^2
From statement II: side of a square $=$ v3600
$=60 \mathrm{~cm}=$ diameter of circle
Area of circular field $=(22 / 7) * 30 * 30$
8. Find the average of five consecutive odd numbers.

1. The sum of the first two numbers is 5 more than the seventh number.
II. The difference of fifth number and the first number is 10.
A) Only I and II
B) Only I
C) Either I nor II
D)Neither I nor II
E) Both I and II

## Answer

Option D
Solution:

From both the statements, the values are hidden.
9. What is the present age of Tina ?
I. Tina is 5 years older than her brother.
II. The ratio of the present ages of her brother and Tina is $4: 5$ resp.
A) Only I
B) Only II
C) Both I and II
D) Either I or II
E) Neither I nor II

## Answer

## Option C

Solution:
From both the statements:
$\Rightarrow 5 x-4 x=5$
=> $x=5$
Present age of Tina $=25$ years.
10. Every student in a school was given one ticket for a function. The school was charged a total of $\$ 6000$ for these tickets, all of which were of equal value. What was the price of one ticket?
I. If the price of each ticket had been $\$ 2$ more, the total bill would have increased by $40 \%$.
II. If the price of each ticket had been \$1 less, the total cost would have been 1,200 less.
A) Only I
B) Either I or II
C) Only II
D) Both I and II
E) Neither I nor II

## Answer

## Option B

## Solution:

If the price of the one ticket is $p$, and the total number of tickets is $n$, then from the
statement, $(6000 / n)=p$
From statement I : 8400/n $=p+2$
From statement II : $(6000-1200) / n=p-1$

In each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and

Give answer

- (A) If the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question
- (B) If the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question
- (C) If the data either in statement I alone or in statement II alone are sufficient to answer the question
- (D) If the data given in both statements I and II together are not sufficient to answer the question and
- (E) If the data in both statements I and II together are necessary to answer the question.

1. Question: In which year was Rahul born ?

## Statements:

I. Rahul at present is 25 years younger to his mother.
II. Rahul's brother, who was born in 1964, is 35 years younger to his mother.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer \& Explanation

## Answer: Option E

## Explanation:

From both I and II, we find that Rahul is $(35-25)=10$ years older than his brother, who was born in 1964. So, Rahul was born in 1954.
2. Question: What will be the total weight of 10 poles, each of the same weight ?

## Statements:

I. One-fourth of the weight of each pole is 5 kg .
II. The total weight of three poles is 20 kilograms more than the total weight of
two poles.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer \& Explanation

Answer: Option C

Explanation:

From I, we conclude that weight of each pole $=(4 \times 5) \mathrm{kg}=20 \mathrm{~kg}$.
So, total weight of 10 poles $=(20 \times 10) \mathrm{kg}=200 \mathrm{~kg}$.
From II, we conclude that:
Weight of each pole $=($ weight of 3 poles $)-($ weight of 2 poles $)=20 \mathrm{~kg}$.
So, total weight of 10 pojes $=(20 \times 10) \mathrm{kg}=200 \mathrm{~kg}$.
3. Question: How many children does $M$ have ?

## Statements:

I. $\quad \mathrm{H}$ is the only daughter of X who is wife of M .
II. $K$ and $J$ are brothers of $M$.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option D

## Explanation:

From I , we conclude that H is the only daughter of M . But this does not indicate that $M$ has no son. The information given in II is immaterial.
4. Question: How much was the total sale of the company ?

## Statements:

I. The company sold 8000 units of product A each costing Rs. 25.
II. This company has no other product line.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option E

## Explanation:

From I, total sale of product $A=$ Rs. $(8000 \times 25)=$ Rs. 200000.

From II, we know that the company deals only in product A.

This implies that sale of product $A$ is the total sale of the company, which is Rs. 200000.
5. Question: The last Sunday of March, 2006 fell on which date ?

## Statements:

I. The first Sunday of that month fell on 5th.
II. The last day of that month was Friday.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option C

Explanation:
From I, we conclude that 5th, 12th, 19th and 26 th of March, 2006 were Sundays.

So, the last Sunday fell on 26th.

From II, we conclude that 31st March, 2006 was Friday. Thus, 26th March, 2006 was the last Sunday of the month.
6.

Question: What is the code for 'sky' in the code language ?

## Statements:

I. In the code language, 'sky is clear' is written as 'de ra fa'.
II. In the same code language, 'make it clear' is written as 'de ga jo'.

I alone is sufficient
A. while II alone is not sufficient

II alone is sufficient
B. while I alone is not sufficient

Either I or
C. II is
sufficient

Neither I
D. nor II is sufficient

Both I and
E. II are sufficient

Answer \& Explanation

Answer: Option
D

Explanation:

The only word common to I and II is 'clear' and as such, only the code for 'clear' can be ascertained from the given information.
7. Question: How many children are there between $P$ and $Q$ in a row of children ?

## Statements:

I. $\quad \mathrm{P}$ is fifteenth from the left in the row.
II. $\quad \mathrm{Q}$ is exactly in the middle and there are ten children towards his right.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option E

## Explanation:

From II, Q being in the middle, there are 10 children to his right as well as to his left. So, Q is 11th from the left. From I, P is 15th from the left.

Thus, from both I and II, we conclude that there are 3 children between $P$ and $Q$.
8. Question: How is T related to K?

## Statements:

I. R's sister J has married Ts brother $L$, who is the only son of his parents.
II. $\quad \mathrm{K}$ is the only daughter of L and J.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option E

## Explanation:

From I, we know that $L$ is $T$ 's brother and J's husband. Since $L$ is the only son of his parents, $T$ is L's sister.

From II, we know that K is L's daughter.

Thus, from I and II, we conclude that T is the sister of K's father i.e. T is K's aunt.
9. Question: How is J related to $P$ ?

## Statements:

I. $\quad M$ is brother of $P$ and $T$ is sister of $P$.
II. P's mother is married to J's husband who has one son and two daughters.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option B

Explanation:

From II, we know that P's mother is married to J's husband, which means that J is P's mother.
10. Question: How is $X$ related to $Y$ ?

## Statements:

I. $\quad Y$ and $Z$ are children of $D$ who is wife of $X$.
II. R's sister X is married to Y father.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option C

## Explanation:

From I, we conclude that $Y$ is the child of $D$ who is wife of $X$ i.e. $X$ is $Y$ 's father.

From II, $X$ is married to $Y$ 's father. This implies that $X$ is $Y$ 's mother.
11. Question: Who is to the immediate right of $P$ among five persons $P, Q, R, S$ and Tfacing North ?

## Statements:

I. $\quad R$ is third to the left of $Q$ and $P$ is second to the right of $R$.
II. $\quad Q$ is to the immediate left of $T$ who is second to the right of $P$.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option C

## Explanation:

From I, we have the order: $\mathrm{R},-\mathrm{P}, \mathrm{Q}$.

From II, we have the order: P, Q, T.

Clearly, each one of the above two orders indicates that Q is to the immediate right of P .
12. Question: On which date of the month was Anjali born in February 2004 ?

## Statements:

I. Anjali was born on an even date of the month.
II. Anjali's birth date was a prime number.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option E

## Explanation:

From I and II, we conclude that Anjali was born in February 2004 on a date which is an even prime number. Since the only even prime number is 2, so Anjali was born on 2nd February,
2004.
13. Question: How is $X$ related to $Y$ ?

## Statements:

I. Y says, "I have only one brother".
II. X says, "I have only one sister".
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option D

Explanation:

The statements in I and II do not provide any clue regarding relation between X and Y .
14. Question: How is F related to P?

## Statements:

I. P has two sisters M and N .
II. F's mother is sister of M's father.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer: Option E

## Explanation:

From I and II, we conclude that $P$ is M's brother and so M's father is P's father. So, $F$ is the child of the sister of P's father i.e. F's mother is P's aunt or F is P's cousin.
15. Question: $B$ is the brother of $A$. How is $A$ related to $B$ ?

## Statements:

I. $\quad \mathrm{A}$ is the sister of C .
II. $E$ is the husband of $A$.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option C

## Explanation:

$B$ is $A$ 's brother means $A$ is either brother or sister of $B$. Now, each one of $I$ and II individually indicates that A is a female, which means that A is B's sister.
16. Question: How many children are there in the row of children facing North ?

## Statements:

I. Vishakha who is fifth from the left end is eighth to the left of Ashish who istwelfth from the right end.
II. Rohit is fifth to the left of Nisha who is seventh from the right end and eighteenth from the left end.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient

## E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option C

## Explanation:

Since 8th to the left of 12th from the right is 20th from the right, so from I, we know that Vishakha is 5th from left and 20th from right i.e. there are 4 children to the left and 19 to the right of Vishakha. So, there are $(4+1+19)$ i.e. 24 children in the row.

From II, Nisha is 7th from right and 18th from left end of the row.

So, there are $(6+1+17)=24$ children in the row.
17. Question: How many doctors are practising in this town ?

## Statements:

I. There is one doctor per seven hundred residents.
II. There are 16 wards with each ward having as many doctors as the number of wards.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer \& Explanation

## Answer: Option B

## Explanation:

From I, total number of doctors in town $=(1 / 700 \times N)$, where $N=$ total number of residents in town. But, the value of $N$ is not known.

From II, total number of doctors in town
$=($ Number of wards in town $) \times$ (Number of doctors in each ward)
$=16 \times 16=256$.
18. Question: On which day of the week was birthday of Sahil ?

## Statements:

I. Sahil celebrated his birthday the very next day on which Arun celebrated his birthday.
II. The sister of Sahil was born on the third day of the week and two days after Sahil was born.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option B

## Explanation:

I does not mention the day of the week on the birthday of either Arun or Sahil.

According to II, Sahil's sister was born on Wednesday and Sahil was born two days before Wednesday i.e. on Monday.
19. Question: How many pages of book $X$ did Robert read on Sunday ?

## Statements:

I. The book has 300 pages out of which two-thirds were read by him before Sunday.
II. Robert read the last 40 pages of the book on the morning of Monday.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer \& Explanation

## Answer: Option E

## Explanation:

From I and II, we find that Robert read ( $300 \times 2 / 3$ ) i.e. 200 pages before Sunday and the last 40 pages on Monday.

This means that he read [300-(200 + 40)] i.e. 60 pages on Sunday.
20. Question: How is Tanya related to the man in the photograph ?

## Statements:

I. Man in the photograph is the only son of Tanya's grandfather.
II. The man in the photograph has no brothers or sisters and his father isTanya's grandfather.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option C

## Explanation:

From I, we conclude that the man is the only son of Tanya's grandfather i.e. he is Tanya's father or Tanya is the man's daughter.

From II, we conclude that the man's father is Tanya's grandfather. Since the man has no brothers or sisters, so he is Tanya's father or Tanya is the man's daughter.
21. Question: Among T, V, B, E and C, who is the third from the top when arranged in the descending order of their weights?

## Statements:

I. $\quad B$ is heavier than $T$ and $C$ and is less heavier than $V$ who is not the heaviest.
II. $\quad \mathrm{C}$ is heavier than only T .
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option A

## Explanation:

From I, we have: $\mathrm{B}>\mathrm{T}, \mathrm{B}>\mathrm{C}, \mathrm{V}>\mathrm{B}$. Thus, V is heavier than each one of $\mathrm{B}, \mathrm{T}$ and C . But V is not the heaviest. So, E is the heaviest.

Thus, we have the order. $\mathrm{E}>\mathrm{V}>\mathrm{B}>\mathrm{T}>\mathrm{C}$ or $\mathrm{E}>\mathrm{V}>\mathrm{B}>\mathrm{C}>\mathrm{T}$. Clearly, B is third from the top.
22. Question: Which word in the code language means 'flower' ?

## Statements:

I. 'de fu la pane' means 'rose flower is beautiful' and 'la quiz' means 'beautiful tree'.
II. 'de la chin' means 'red rose flower' and 'pa chin' means 'red tea'.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option D

Explanation:

From the two statements given in I, the code for the only common word 'beautiful' can be determined.

From the two statements given in II, the code for the only common word 'red' can be determined.

In I and II, the common words are 'rose and 'flower' and the common code words are 'de' and
'la'. So, the code for 'flower' is either 'de' or 'la'.
23. Question: How many students in a class play football ?

## Statements:

I. Only boys play football.
II. There are forty boys and thirty girls in the class.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option D

## Explanation:

It is not mentioned whether all the boys or a proportion of them play football.
24. Question: Who is C's partner in a game of cards involving four players $A, B, C$ and $D$ ? Statements:
I. $D$ is sitting opposite to $A$.
II. $\quad B$ is sitting right of $A$ and left of $D$.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer: Option C

## Explanation:

Clearly, each of the given statements shows that $B$ is sitting opposite to $C$ or $B$ is the partner of $C$.
25. Question: On a T.V. channel, four serials A, B, C and D were screened, one on eacn day, on four consecutive days but not necessarily in that order. On which day was the serial C screened?

## Statements:

I. The first serial was screened on 23rd, Tuesday and was followed by serial D.
II. Serial A was not screened on 25th and one serial was screened between serials A and B.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option E

## Explanation:

From I, we know that the serials were screened on 23rd, 24th, 25th and 26th.

Clearly, D was screened second i.e. on 24th, Wednesday.

From II, we know that one serial was screened between $A$ and $B$.

So, A and B were screened first and third, i.e. on 23 rd and 25 th. But, A was not screened on 25th.

So, A was screened on 23 rd and B on 25th. Thus, C was screened on 26th, Friday.
26. Question: How is Sulekha related to Nandini ?

## Statements:

I. Sulekha's husband is the only son of Nandini's mother.
II. Sulekha's brother and Nandini's husband are cousins.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option C

## Explanation:

From I, we conclude that Sulekha is the wife of Nandini's mother's only son i.e. Nandini's brother. Thus, Sulekha is Nandini's sister-in-law.

From II, we conclude that Sulekha is the cousin of Nandini's husband, which implies that Sulekha is Nandini's sister-in-law.
27. Question: Can Ritesh retire from office $X$ in January 2006, with full pension benefits ?

## Statements:

I. Ritesh will complete 30 years of service in office $X$ in April 2000 and desires to retire.
II. As per office $X$ rules, an employee has to complete minimum 30 years of service and attain age of 60 . Ritesh has 3 years to complete age of 60 .
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer \& Explanation

## Answer: Option E

## Explanation:

Clearly, the facts given in I and II contain two conditions to be fulfilled to get retirement and
also indicate that Ritesh fulfills only one condition out of them.
28. Question: What is the code for 'or' in the code language?

## Statements:

I. 'nik sa te' means 'right or wrong', 'ro da nik' means 'he is right' and 'fe te ro' means 'that is wrong'.
II. 'pa nik la' means 'that right man', 'sa ne pa' means 'this or that' and 'ne ka re' means 'tell this there'.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option C

## Explanation:

I. In 'right or wrong' and 'he is right', the common word is 'right' and the common code word is 'nik'. So 'nik' means 'right'. In 'right or wrong' and 'that is wrong', the common word is 'wrong' and the common code word is 'te'. So, 'te' means 'wrong'.

Thus, in 'right or wrong', 'sa' is the code for 'or'. II. In 'that right man' and 'this or that', the common word is 'that' and the common code word is 'pa'. So, 'pa' means 'that'. In 'this or that' and 'tell this there', the common word is 'this' and the common code word is 'ne'. So, 'ne' means 'this'. Thus, in 'this or that', 'sa' is the code for 'or'.
29. Question: Madan is elder than Kamal and Sharad is younger than Arvind. Who among them is the youngest?

## Statements:

I. Sharad is younger than Madan.
II. Arvind is younger than Kamal.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option B

Explanation:

As given, we have: $\mathrm{M}>\mathrm{K}, \mathrm{A}>\mathrm{S}$.

From II, K > A. Thus, we have: $\mathrm{M}>\mathrm{K}>\mathrm{A}>\mathrm{S}$.

So, Sharad is the youngest. From I, $M>S$. Thus, we have: $M>K>A>S$ or $M>A>K>S$ or $M>A>S>K$.
30. Question: On which date in August was Kapil born ?

## Statements:

I. Kapil's mother remembers that Kapil was born before nineteenth but after fifteenth.
II. Kapil's brother remembers that Kapil was born before seventeenth but after twelfth.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option E

Explanation:

From I, we conclude that Kapil was born on any one of the dates among 16th, 17th and 18 th.

From II, we conclude that Kapil was born on any one of the dates among 13th, 14th, 15th and 16th.

Thus, from both I and II, we conclude that Kapil was born on 16th August.
31. Question: What is Gagan's age ?

## Statements:

I. Gagan, Vimal and Kunal are all of the same age.
II. Total age of Vimal, Kunal andAnil is 32 years and Anil is as old as Vimal and Kunal together.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer \& Explanation

## Answer: Option E

## Explanation:

As given in I and II, we have: $G=V=K, V+K+A=32$ and $A=V+K$.

Putting $V+K=A$ in $V+K+A=32$, we have: $2 A=32$ or $A=16$.

Thus, $\mathrm{V}+\mathrm{K}=16$ and $\mathrm{V}=\mathrm{K}$. So, $\mathrm{V}=\mathrm{K}=8$. Thus, $\mathrm{G}=8$.
32. Question: In a certain code, '13' means 'stop smoking' and '59' means 'injurious habit'. What do ' 9 ' and ' 5 ' mean respectively in that code ?

## Statements:

I. '157' means 'stop bad habit'.
II. '839' means 'smoking is injurious'.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option C

## Explanation:

'59' means 'injurious habit' and '157' means 'stop bad habit' (from I). Thus, the common code number '5' stands for common word 'habit'. So, '9' represents 'injurious'. Hence, I is sufficient.

Also, '59' means 'injurious habit' and '839' means 'smoking is injurious'. Thus, the common code number ' 9 ' stands for common word 'injurious'. So, '5' represents 'habit'. Thus, II is also sufficient.,
33. Question: How much money do Vivek and Suman have together ?

## Statements:

I. Suman has 20 rupees less than what Tarun has.
II. Vivek has 30 rupees more than what Tarun has.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option D

## Explanation:

From I, we have: $\mathrm{S}=\mathrm{T}-20$.

From II, we have: $\mathrm{V}=\mathrm{T}+30$.

Thus, from both I and II, we have: $\mathrm{V}+\mathrm{S}=(\mathrm{T}+30)+(\mathrm{T}-20)=(2 \mathrm{~T}+10)$.

So, to get the required amount, we need to know the amount that Tarun has.
34. Question: Among Monika, Anita, Sonal, Ratna and Tanvy, who came last for the programme ?

## Statements:

I. Monika came after Anita but not after Tanvy.
II. Ratna came after Tanvy but not after Sonal.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option E

## Explanation:

From I, we have the order : A, M, T.

From II, we have the order: T, R, S.

Combining the above two, we get the order: $A, M, T, R, S$.

Thus, Sonal came last for the programme.
35. Question: Who among $P, Q, R, S$ and $T$ is the lightest?

## Statements:

I. $\quad R$ is heavier than $Q$ and $T$ but lighter than $S$.
II. S is not the heaviest.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer: Option D

## Explanation:

From $I$, we have: $R>Q, R>T, S>R$ i.e. $S>R>Q>T$ or $S>R>T>Q$.

From II, S is not the heaviest. So, P is the heaviest. Thus, we have: $\mathrm{P}>\mathrm{S}>\mathrm{R}>\mathrm{Q}>\mathrm{T}$ or $\mathrm{P}>$ $\mathrm{S}>\mathrm{R}>\mathrm{T}>\mathrm{Q}$. Hence, either T or Q is the lightest.
36. Question: How is $T$ related to $K$ ?

## Statements

I. $K$ has two sons; one of the sons is $A$.
II. The mother of T has only two sons - Aand B.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option E

## Explanation:

From II, we know that T's mother has only two sons, $A$ and $B$. This implies that $T$ is the sister of both $A$ and $B$. But, from I, A is also $K$ 's son. So, $T$ is the daughter of $K$.
37. Question: What is the shortest distance between Devipur and Durgapur ?

## Statements:

I. Durgapur is 20 kms away from Rampur.
II. Devipur is 15 kms away from Rampur.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option D

## Explanation:

Clearly, the distance of each village from Rampur is given in I and II. But nothing about their relative positions is mentioned. So, the distance between the two villages cannot be calculated.
38. Question: How is A related to D ?

## Statements:

I. $B$ is the brother of $A$.
II. B is D's son.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option D

## Explanation:

From I and II, we conclude that $A$ is either son or daughter of $D$.
39. Question: Manoj, Prabhakar, Akash and Kamal are four friends. Who among them is the heaviest?

## Statements:

I. Prabhakar is heavier than Manoj and Kamal but lighter than Akash.
II. Manoj is lighter than Prabhakar and Akash but heavier than Kamal.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option A

## Explanation:

From I, we have: $P>M, P>K, A>P$.

Thus, $\mathrm{A}>\mathrm{P}>\mathrm{M}>\mathrm{K}$ or $\mathrm{A}>\mathrm{P}>\mathrm{K}>\mathrm{M}$. So, Akash is the heaviest.

From II, we have: $P>M, A>M, M>K$.
Thus, $A>P>M>K$ or $P>A>M>K$. So, either Akash or Prabhakar is the heaviest.
40. Question: Vinod's and Javed's salaries are in the proportion of $4: 3$ respectively. What is Vinod's salary ?

## Statements:

I. Javed's salary is $75 \%$ that of Vinod's salary.
II. Javed's salary is Rs 4500.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option B

Explanation:

Statement I is merely an interpretation of the information contained in the question.

However, Vinod's salary can be ascertained from II as follows: Let Vinod's and Javed's salaries be $4 x$ and $3 x$ respectively. Then, $3 x=4500$ or $x=1500$. Therefore Vinod's salary $=$ $4 x=$ Rs. 6000.
41. Question: What is Nitin's rank from the top in a class of forty students ?

## Statements:

I. There are ten students between Nitin and Deepak.
II. Deepak is twentieth from the top.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option D

## Explanation:

Since there are ten students between Nitin and Deepak, so Nitin may be eleven ranks above or below Deepak. Thus, Nitin may be 9th or 31st from the top.
42. Question: Which direction is Sunny facing now ?

## Statements:

I. If Sunny turns to his right and again turns to his right, he will be facing North.
II. If Sunny walks some distance and turns left and again walks some distance, then his face will be towards left of Dinesh who is facing South.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient

## E. Both I and II are sufficient

## Answer \& Explanation

## Answer: Option C

## Explanation:

From I, we conclude that Sunny is facing South, since a person facing South shall face North on turning to his right, twice.

From II, we know that after walking, Sunny shall face towards left of Dinesh facing South i.e. East and a person walking southwards shall face East on turning to 'his left.

Thus, Sunny is facing South.
43. Question: T studies in which of the schools B, C, D, E and F ?

## Statements:

I. T does not study in the same school as either R or J.
II. $\quad R$ and J study in schools $D$ and $F$ respectively.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option D

## Explanation:

As given in I and II, R studies in school D and J studies in school F. So, T does not study in school D or school F. Thus, T studies in any one of the schools B, C or E.
44. Question: How is Divya related to Shaloo ?

## Statements:

I. Divya's mother is sister of Shaloo's father.
II. Shaloo is the daughter of Divya's grandfather's only child.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option C

## Explanation:

From I, we conclude that Divya's mother is Shaloo's aunt or Divya is Shaloo's cousin.

Now, Divya's grandfather's only child is Divya's parent. So, from II, we conclude that Shaloo and Divya are daughters of the same parents i.e. Divya is Shaloo's sister.
45. Question: How many New Year's greeting cards were sold this year in your shop ?

## Statements:

I. Last year 2935 cards were sold.
II. The number of cards sold this year was 1.2 times that of last year.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option E

Explanation:

From both I and II, we find that the number of cards sold this year $=(2935 \times 1.2)=3522$.
46. Question: On which day in April is Gautam's birthday?

## Statements:

I. Gautam was born exactly 28 years after his mother was born.
II. His mother will be 55 years 4 months and 5 days on August 18 this year.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option E

## Explanation:

Clearly, the birthday of Gautam's mother can be found out from II and then Gautam's birthday can be determined using the fact given in I.
47. Question: What is the code for 'is' in the code language ?

## Statements:

I. In the code language, 'shi tu ke' means 'pen is blue'.
II. In the same code language, 'ke si re' means 'this is wonderful'.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option E

## Explanation:

In I and II, the common word is 'is' and the common code word is 'ke'. So, 'ke' is the code for

## 'is'.

48. Question: Among $A, B, C, D$ and $E$, who is in the middle while standing in a row ?

## Statements:

I. C, who is third to the left of $D$, is to the immediate right of $A$ and second to the left of E.
II. $\quad C$ is second to the left of $E$, who is not at any of the ends and who is third to the right of $A$. $D$ is at one of the ends.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option C

Explanation:

From each one of I and II, we get the order: A, C, B, E, D. Clearly, B is in the middle.
49. Question: Among A, B, C, D, E and F, who is the heaviest ?

## Statements:

I. $A$ and $D$ are heavier than $B, E$ and $F$ but none of them is the heaviest.
II. $\quad A$ is heavier than $D$ but lighter than $C$.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer: Option A

## Explanation:

From $I$, we conclude that since none of $A$ and $D$ is the heaviest and each one of $B, E$ and $F$ is lighter than both $A$ and $D$, so $C$ is the heaviest.

## Section-2

In each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and

Give answer

- (A) If the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question
- (B) If the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question
- (C) If the data either in statement I alone or in statement II alone are sufficient to answer the question
- (D) If the data given in both statements I and II together are not sufficient to answer the question and
- (E) If the data in both statements I and II together are necessary to answer the question.

1. Question: How is 'No' coded in the code language ?

## Statements:

I. 'Ne Pa Sic Lo' means 'But No None And' and 'Pa Lo Le Ne' means 'If None And But'.
II. 'Le Se Ne Sic' means 'If No None Will' and 'Le Pi Se Be' means 'Not None If All'.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer \& Explanation

## Answer: Option A

## Explanation:

In the two statements given in I, the common words are 'But', 'None', 'And' and the
common code words are 'Ne', 'Pa', ,'Lo'. So, 'Ne', 'Pa' and 'Lo' are codes for 'But', 'None' and 'And'. Thus, in the first statement, 'Sic' is the code for 'No'.
2. Question: Who among $P, Q, T, V$ and $M$ is exactly in the middle when they are arranged in ascending order of their heights ?

## Statements:

I. $\quad \mathrm{V}$ is taller than Q but shorter than M .
II. $\quad \mathrm{T}$ is taller than Q and M but shorter than P .
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer \& Explanation

Answer: Option E

## Explanation:

From I, we have: $\mathrm{M}>\mathrm{V}>\mathrm{Q}$.

From II, we have: $\mathrm{T}>\mathrm{Q}, \mathrm{T}>\mathrm{M}, \mathrm{P}>\mathrm{T}$.

Combining the above two, we have: $\mathrm{P}>\mathrm{T}>\mathrm{M}>\mathrm{V}>\mathrm{Q}$ i.e. $\mathrm{Q}<\mathrm{V}<\mathrm{m}<\mathrm{t}<\mathrm{p} .<$ p=""></v<m<t<p.<>

Clearly, $M$ is in the middle.
3. Question: Which code word stands for 'good' in the coded sentence 'sin co bye' which means 'He is good' ?

## Statements:

I. In the same code language, 'co mot det' means 'They are good'.
II. In the same code language, 'sin mic bye' means 'He is honest'.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer \& Explanation

Answer: Option C

## Explanation:

In the given statement and I, the common word is 'good' and the common code word is 'co'. So, 'co' is the code for 'good'.

In the given statement and II, the common words are 'He' and 'is' and the common code words are 'sin' and 'bye'. So 'sin' and 'bye' are the codes for 'He' and 'is'. Thus, in the given statement, 'co' is the code for 'good'.
4. Question: What is the numerical code for 'water' in a certain code ?

## Statements:

I. The code for 'give me water' is '719'.
II. The code for 'you can bring water for me' is written as '574186'.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer \& Explanation

## Answer: Option D

## Explanation:

In I and II, the common words are 'me' and 'water' and the common code numbers
are ' 7 ' and ' 1 '. So, the code for 'water' is either ' 7 ' or ' 1 '.
5. Question: How many visitors saw the exhibition yesterday ?

## Statements:

I. Each entry pass holder can take up to three persons with him/her.
II. In all, 243 passes were sold yesterday.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option D

## Explanation:

From I and II, we find that maximum ( $243 \times 3$ ) i.e. 729 visitors saw the exhibition.

But the exact number cannot be determined.
6.

Question: Gaurav ranks eighteenth from the top in a class. What is his rank from the last?

Statements:
I. There are

47
students in the class.
II. Jatin who ranks 10th in the same class, ranks 38th from the last.

I alone is sufficient

II alone is sufficient
B. while I alone is not sufficient

Either I or
C. II is sufficient

Neither I
D. nor II is sufficient

Both I and
E. II are sufficient

Answer \& Explanation

Answer: Option C

Explanation:

From I, we conclude that in a class of 47 students, Gaurav ranks 18th from the top and hence 30th from the last.

From II, we conclude that there are 9 students above and 37 students below Jatin in rank. Thus, there are $(9+1+$ 37) $=47$ students in the class.

So, Gaurav who ranks 18th from the top, is 30th from the last.
7. Question: What is the rank of $P$ from the bottom in a class of 30 students ?

## Statements:

I. $\quad M$ is third from the top and there are five students between $M$ and $P$.
II. The rank of $K$ is fourth from the bottom and there are 17 students between $K$ and $P$.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option C

Explanation:

From I, we conclude that P is 9 th from the top. Thus, in a class of 30 students, P ranks 22 nd from the bottom.

From II, we conclude that $P$ is 22 nd from the bottom.
8. Question: In a row of five buildings - $P, Q, R, S$ and $T$, which building is in the middle ?

## Statements:

I. Buildings $S$ and $Q$ are at the two extreme ends of the row.
II. Building , T is to the right of building R .
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option D

## Explanation:

From I, we have the order: $S,-,-,-, Q$. From II, we have the order : $R, T$. Combining the above two, we get two possible orders : $S, R, T, P, Q$ or $S, P, R, T, Q$. Thus, either $T$ or $R$ is in the middle.
9. Question: How many speeches were delivered in the two days' programme ?

## Statements:

I. 18 speakers were invited to give at least one speech (maximum of two speech), out of which one-sixth of the speakers could not come.
II. One-third of the speakers gave two speeches each.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option E

## Explanation:

From I, we find that number of speakers who attended programme $=18-(1 / 6)$ of $18=15$.

From II, we find that one-third of 15 i.e. 5 speakers gave 2 speeches each, while each of the remaining 10 speakers delivered only one speech.

So, total number of speeches delivered $=(5 \times 2+10 \times 1)=20$.
10. Question: Among five friends, who is the tallest ?

## Statements:

I. $D$ is taller than $A$ and $C$.
II. B is shorter than E but taller than D.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option E

Explanation:

From I, we have: $D>A, D>C$.

From II, we have: $\mathrm{E}>\mathrm{B}>\mathrm{D}$.

Combining the above two, we get $: E>B>D>A>C$ or $E>B>D>C>A$.

Thus, E is the tallest.
11. Question: What time did the train leave today ?

## Statements:

I. The train normally leaves on time.
II. The scheduled departure is at $14: 30$.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option D

Explanation:

Clearly, even both I and II together do not reveal the exact time of departure of the train today.
12. Question: What does '\$' mean in a code language?

## Statements:

I. '5\$\#3' means 'flowers are really good'.
II. '7\#35' means 'good flowers are available'.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option E

## Explanation:

In I and II, the common codes are '5', '\#' and '3' and the common words are 'flowers', 'are' and 'good'. Thus, in I, the remaining code '\$' stands for 'really'.
13. Question: How many sons does $D$ have ?

## Statements:

I. A's father has three children.
II. B is A's brother and son of D.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option D

Explanation:

From both I and II together, we can conclude that $A$ and $B$ are the children of $D$, but the sex of

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A and the third child of $D$ is not known. So, both I and II together are also not sufficient to answer the question.
14. Question: How is M related to N?

## Statements:

I. P, who has only two kids, $M$ and $N$, is the mother-in-law of $Q$, who is sister-in-law of $N$.
II. $R$, the sister-in-law of $M$, is the daughter-in-law of $S$, who has only two kids, $M$ and $N$.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option A

Explanation:

From I, we conclude that $P$ is the mother of $M$ and $N$, while $Q$ is the daughter-in-law of $P$ and sister-in-law of N . Thus, Q is M 's wife and hence, M is N 's brother.

From II, we conclude that M and N are the children of S . Also, R is the daughter-in-law of S and sister-in-law of M . So, R is N 's wife and thus, N is M's brother. Hence, M is either brother or sister of N .
15. Question: What is the colour of the fresh grass ?

## Statements:

I. Blue is called green, red is called orange, orange is called yellow.
II. Yellow is called white, white is called black, green is called brownand brown is called purple.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option B

## Explanation:

The colour of fresh grass is 'green' and as given in II, 'green' is called 'brown'. So, the colour of fresh grass is 'brown'.
16. Question: Which train did Aman catch to go to office ?

## Statements:

I. Aman missed his usual train of 10.25 a.m. A train comes in every 5 minutes.
II. Aman did not catch the 10.40 a.m. train or any train after that time.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option D

Explanation:
From I and II, we conclude that Aman went to office by either 10.30 a.m. or 10.35 a.m. train.
17. Question: On which day of the week did Hitesh visit the zoo ?

## Statements:

I. Hitesh did not visit zoo either on Tuesday or on Thursday.
II. Hitesh visited zoo two days before his mother reached his house which was day after Monday.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option B

## Explanation:

According to I, Hitesh visited the zoo on any of the week days except Tuesday and Thursday.

According to II, Hitesh's mother reached his house day after Monday i.e. on Tuesday.

Thus, Hitesh visited zoo two days before Tuesday i.e. on Sunday.
18. Question: The Chairman of a big company visits one department on Monday of every week except for the Monday of third week of every month. When did he visa/the Purchase department?

## Statements:

I. He visited Accounts department in the second week of September afterhaving visited Purchase department on the earlier occasion.
II. He had visited Purchase department immediately after visiting Stores department but before visiting Accounts department.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer \& Explanation

## Answer: Option A

## Explanation:

From I, we can conclude that the Chairman visited Purchase department on Monday of the first week of September.

The time of visit of no department is mentioned in II, which is, therefore, insufficient.
19. Question: What does 'nip' stand for in a code language ?

## Statements:

I. In the code language, 'that is very beautiful' is written as 'se nip sre num'
II. In the same code language, 'my house is beautiful' is written as 'nip sto sre tip'.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option D

## Explanation:

In I and II, the common codes are 'nip' and 'sre' and the common words are 'is' and 'beautiful' So, 'nip' and 'sre' are the codes for 'is' and 'beautiful'. But, the exact word for 'nip' cannot be found out.
20. Question: What is the monthly salary of Prashant ?

## Statements:

I. Prashant gets $15 \%$ more than Sumit while Sumit gets $10 \%$ less than Lokesh.
II. Lokesh's monthly salary is Rs 2500.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Explanation:

From both I and II, we find that:

Prashant's salary $=115 \%$ of ( $90 \%$ of Rs 2500) = Rs 2587.50.
21. Question: How many gift boxes were sold on Monday?

## Statements:

I. It was $10 \%$ more than the boxes sold on the earlier day i.e. Sunday.
II. Every third visitor to the shop purchased the box and 1500 visitors were there on Sunday
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation
Answer: Option E

Explanation:
From II, we can conclude that $(1500 * 3)=500$ boxes were sold on Sunday.

Thus, from I, we find that number of boxes sold on Monday $=500+10 \%$ of $500=550$.
22. Question: In a certain code language, '297' means 'tie clip button'. Which number means 'button' in that language ?

## Statements:

I. In that language, '926' means clip your tie'.
II. In that language, '175' means 'hole and button'.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option C

## Explanation:

In given statement and I, the common words are 'tie' and 'clip' and the common codes are '2' and ' 9 '. So, ' 2 ' and ' 9 ' are the codes for 'tie' and 'clip'. Thus, in the given statement, ' 7 ' means 'button'. In given statement and II, the common code word '7' represents the common word 'button'.
23. Question: What is Sumit's position from the right end in a row of children?

## Statements:

I. There are 10 children between Sumit and Rajan.
II. Rajan is twentieth from the left end of the row of children.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option D

## Explanation:

Clearly, neither the number of children in the row is given nor the position of Sumit relative to Rajan is mentioned in any one of I or II.
24. Question: In a certain code, 'nop al ed' means They like flowers'. Which code wordmeans 'flowers' ?

## Statements:

I. 'id nim nop' means 'They are innocent'.
II. 'gob ots al' means 'We like roses'.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option E

## Explanation:

In the given statement and I, the common word is 'They' and the common code word is 'nop'. So, 'nop' is the code for 'They'.

In the given statement and II, the common word is 'like' and the common code word is 'al'. So, 'al' is the code for 'like'.

Thus, in the given statement, 'ed' is the code for 'flowers'.
25. Question: What is the code for 'mangoes' in the code language ?

## Statements:

I. In that code language, 'Te Le Pa Na' means 'You eat many mangoes' and 'Le NaDa' means 'You sell mangoes'.
II. In the code language, 'Ge Na Se La Le' means 'They eat bananas and mangoes' and 'Ne De Le La' means 'Who others eat bananas'.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer \& Explanation

## Explanation:

In 'You eat many mangoes' and 'Who others eat bananas', the common word is 'eat' and the common code word is 'Le'. So, 'Le' means 'eat'.

In 'You eat many mangoes' and 'They eat bananas and mangoes', the common code word 'Le' stands for 'eat'. So, the other common code word ' Na ' stands for the other common word i.e. 'mangoes'.
26. Question: In a row of five children $A, B, C, D$ and $E$, who is standing in the middle ?

## Statements:

I. $D$ is to the immediate right of $E$ and $B$ is to the immediate left of $E$.
II. $B$ is at the extreme left of the, row.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option E

## Explanation:

From I, we have the order: B, E, D.

From II, B is at the extreme left of the row.

Thus, considering both I and II, we conclude that among the five children, D is the third and hence the middle child in the row.
27. Question: How many employees of Bank Z opted for VRS ?

## Statements:

I. $18 \%$ of the 950 officer cadre employees and $6 \%$ of the 1100 other cadreemployees opted for VRS.
II. $28 \%$ of the employees in the age-group of 51 to 56 and $17 \%$ of the employees inall other age-groups opted for VRS.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer \& Explanation

## Answer: Option A

## Explanation:

From I, we have: number of employees who opted for VRS $=18 \%$ of $950+6 \%$ of $1100=171$ $+66=237$.

From II, we cannot get the required answer until and unless the number of employees in agegroup 51 to 56 and other age-groups is known.
28. Question: Among M, N, D, P and K, who earns more than only the least earner among them?

## Statements:

I. $\quad N$ earns more than $M$ and $P$ but less than only $D$.
II. $M$ earns more than $P$ who earns less than $K$.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option D

## Explanation:

From I, we have: $N>M, N>P, D>N$. Thus, we have: $D>N>M>P$ or $D>N>P>M$.

But, from II, M earns more than $P$ i.e. $D>N>M>P$. Also, since $P$ earns less than $K$ and $N$ earns less than only $D$, so we have: $D>N>K>M>P$ or $D>N>M>K>P$.

Hence, either K or $M$ earns more than only the least earner i.e. P.
29. Question: What is Sachin's rank from the top in a class of 25 students ?

## Statements:

I. Sachin ranks three ranks above Amit who ranks 18 th from the bottom.
II. Sachin's rank from the top is two ranks below Deepti who ranks 23rd from the bottom.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option C

## Explanation:

From I, We know that in a class of 25 students, Amit ranks 18th from the bottom and 8th from the top.

Sachin is three ranks above Amit and so, Sachin ranks 5th from the top.

From II, Deepti ranks 23rd from the bottom and hence, 3rd from the top. Sachin, being 2 ranks below Deepti, is, thus, 5th from the top.
30. Question: It is 8.00 p.m., when can Hemant get next bus for Ramnagar from Dhanpur?

## Statements:

I. Buses for Ramnagar leave after every 30 minutes, till 10 p.m.
II. Fifteen minutes ago, one bus has left for Ramnagar.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option E

## Explanation:

II reveals that the previous bus had left at 7.45 p.m. As given in I, the next bus would leave after 30 minutes i.e. at 8.15 p.m.
31. Question: How many girls are taller than Shravan in his class ?

## Statements:

I. When students of Shravan's class are ranked in descending order of their heights, Shravan's rank is 17th from the top among all the students and 12th among boys.
II. Shravan's rank from the bottom on the basis of height among boys is 18th and among all students, 29th.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

## Answer \& Explanation

## Answer: Option A

## Explanation:

From I, we conclude that there are 16 students and 11 boys taller than Shravan.

This implies that there are 5 girls taller than Shravan.

In II, Shravan's rank from the bottom is mentioned and to ascertain the number of girls taller than him, we need to know his rank from the top for which the number of students in the class is required, which is not given.
32. Question: How is $R$ related to $M$ ?

## Statements:

I. M's brother is husband of $P$.
II. $\quad \mathrm{P}$ is mother of R 's sister.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

## Answer: Option D

## Explanation:

From II, we conclude that $P$ is R's mother.

From I, we conclude that $M$ is the brother or sister of P's husband, who is also R's father. Thus, $R$ is either nephew or niece of $M$.
33. Question: How is $M$ related to $N$ ?

## Statements:

I. $\quad B$ is the daughter of $M$ and sister of $Q$.
II. $\quad \mathrm{N}$ is the son of K who is B 's grandfather.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

Answer \& Explanation

Answer: Option D

Explanation:

From II, we know that N is K 's son and K is B's grandfather. Thus, N is the son of B 's
grandfather i.e. $N$ is either father or uncle of $B$.

From $I, B$ is the daughter of $M$. So, $M$ is either father or mother of $B$.

Clearly, the correct relationship between M and N cannot be deduced.

## Section-3

1. Question: What is Suman's rank from the top in a class of forty students ?

## Statements:

I. Suman is 3 ranks below Deepak from the top.
II. Deepak's rank from the bottom is 23.
III. Suman is 3 ranks above Deepak from the bottom.
A. Any two of the three
B. Only I and II
C. Only II and III
D. All I, II and III
E. Only II and either I or III

Answer \& Explanation

Answer: Option E

## Explanation:

From II, we conclude that in a class of 40, Deepak ranks 23rd from the bottom i.e. 18th from the top.

From I and II, we find that Suman is 3 ranks below 18th rank from the top i.e. she ranks 21 st from the top.

From II and III, we find that Suman is 3 ranks above 23rd rank from the bottom
i.e. she ranks 20th from the bottom or 21st from the top.
2. Question: Five persons - A, B, C, D and E are sitting in a row. Who is sitting in the middle?

## Statements:

I. B is between $E$ and $C$.
II. $B$ is to the right of $E$.
III. $\quad D$ is between $A$ and $E$.
A. Only I and II
B. Only II and III
C. Only I and III
D. All I, II and III
E. None of these

Answer \& Explanation

## Answer: Option D

## Explanation:

From $I$, the order is : $\mathrm{E}, \mathrm{B}, \mathrm{C}$ or $\mathrm{C}, \mathrm{B}, \mathrm{E}$.

From II, the order is : E, B.
From III, the order is : A, D, E.

Combining the above three, we get the order as: A, D, E, B, C. Clearly, E is sitting in the middle.
3. Question: How is 'DATE' written in the code language ?

## Statements:

I. DEAR is written as \$\#@? in that code.
II. TREAT is written as \%?\#@\% in that code.
III. TEAR is written as \%\#@? in that code,
A. Only I and II
B. Only II and III
C. All I, II and III
D. Only I and either II or III
E. None of these

Answer \& Explanation

## Answer: Option D

## Explanation:

Observing I, II and III, we find that similar letters have similar code symbols at the corresponding places in the code. So, this is direct-coding.

Thus, to find the code for DATE, we need the code for $D$ which can be obtained from I only (i.e. \$.) and the codes for A, T and E which can be obtained either from II or III (@, \# and \% respectively).
4. Question: In which year was Sanjay born?

## Statements:

I. Sanjay is six years older than Gopal.
II. Gopal's brother was born in 1982.
III. Sanjay's brother is two years younger than Gopal's brother who was eightyears younger than Gopal.
A. Only I and II
B. Only II and III
C. Only I and III
D. All I, II and III
E. None of these

Answer \& Explanation

Answer: Option D

## Explanation:

From II, we know that Copal's brother was born in 1982.

From III, we find that Gopal's brother was 8 years younger to him i.e. Gopal was born in 1974.

From I, we find that Sanjay is 6 years older than Gopal. Thus, Sanjay was born in 1968.
5. Question: Who among Siddhartha, Nikunj, Vipul and Mukul is the youngest?

## Statements:

I. Vipul is younger than Mukul but older than Siddhartha and Nikunj.

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II. Mukul is the oldest.
III. Siddhartha is older than Nikunj.
A. Only I
B. Only I and II
C. Only II and III
D. Only I and III
E. None of these

Answer \& Explanation

## Answer: Option D

## Explanation:

From I, we have: $\mathrm{M}>\mathrm{V}, \mathrm{V}>\mathrm{S}, \mathrm{V}>\mathrm{N} \ldots$ (i)

From II, we have: Mukul is the oldest ...(ii)

From III, we have: S > N ...(iii)

Combining (i) and (iii), we get $: M>V, V>S>N$ or $M>V>S>N$. Clearly, Nikunj is the youngest.
6. Question: In a certain code, 'XYZ' means 'We are friends'. Which letter stands for 'We' ?

## Statements:

I. 'PYN' means 'They are classmates'.
II. 'ZMS' means 'We love them'.
III. 'PX' means 'Hello friends',
A. Only II
B. Only I and III
C. All I, II and III
D. Either I only or II only
E. None of these

Answer \& Explanation

Answer: Option E

Explanation:

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To find the code for 'we', we need to have any of the following:
(i) 'We are friends' should have only 'We' common with another statement, as in II;
(ii) 'We are friends' should have only 'are' and 'friends' common with another single or two statements, as in I and III. Thus, we need Either II only or I and III only.
7. Question: Among $P, Q, R, S$ and $T, Q$ is the secondtallest and $S$ is immediate taller than the shortest. Who among them is in the middle when they stand in the order of their heights ?

## Statements:

I. $\quad \mathrm{T}$ is not the shortest.
II. $\quad \mathrm{R}$ is taller than S but shorter than Q .
III. $\quad \mathrm{P}$ ranks third in height above S when all are arranged in the order of height.
A. Only I and II
B. Either II only or I and III only
C. Only II
D. Only II and III
E. None of these

Answer \& Explanation

## Answer: Option B

## Explanation:

From the given statement, the descending order of heights is :_, $Q_{\neq}, S_{,-}$.

From II, we have the order: _, Q, R, S,_. Thus, R is in themiddle.

From III, we have the order : P, $\mathrm{Q}_{\neq}$, $\mathrm{S}_{\neq}$. But, according to $\mathrm{I}, \mathrm{T}$ is not the shortest.

So, R is the shortest. Thus, we have the order : P, Q, T, S, R. So, T is in the middle.
8. Question: Four subjects - Physics, Chemistry, Mathematics and Biology - were taught in four consecutive periods of one hour each starting from 8.00 a.m. At what time was the Chemistry period scheduled?

## Statements:

I. Mathematics period ended at 10.00 a.m., which was preceded by Biology.

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II. Physics was scheduled in the last period.
III. Mathematics period was immediately followed by Chemistry.
A. Only I
B. Either I only or II only
C. Only II
D. Only II and III
E. Only I and either II or III

Answer \& Explanation

## Answer: Option E

## Explanation:

From I and II, we conclude that Mathematics period began at 9.00 a.m., Biology period began at 8.00 a.m. and Physics period began at 11 a.m. So, the Chemistry period began at 10.00 a.m.

From I and III, we conclude that Mathematics period ended and Chemistry period began at 10.00 a.m.
9. Question: What is the total monthly salary of Vasu ?

## Statements:

I. Vasu's basic salary is Rs 100 more than Rajan's salary who also serves in Vasu's company.
II. Other allowances drawn by Rajan besides his basic salary are Rs 2000 per month which is Rs 50 less than Vasu's salary.
III. Rajan's basic salary is Rs 1550 per month,
A. Only II
B. Only II and III
C. Only I and II
D. Only I and III
E. All I, II and III

Answer \& Explanation

## Answer: Option E

## Explanation:

From III, we have: Rajan's basic salary = Rs. 1550.

From I, we have: Vasu's basic salary = Rs. $(1550+100)=$ Rs. 1650.

From II, we have: Rajan's other allowances = Rs. 2000 and Vasu's other allowances = Rs. 2050.

Therefore Vasu's monthly salary = Rs. $(1650+2050)=$ Rs. 3700.
10. Question: Who is the tallest among six boys $P, T, N, D, Q$ and $R$ ?

## Statements:

I. $\quad \mathrm{P}$ is taller than D and N but not-as tall as T .
II. $\quad R$ is taller than $Q$ but not as tall as $T$.
III. $\quad \mathrm{Q}$ is not taller than T and R .
A. Only I and II
B. Only II and III
C. Only I and III
D. All I, II and III
E. Only I and either II or III

Answer \& Explanation

## Answer: Option A

## Explanation:

From I, we have: $\mathrm{P}>\mathrm{D}, \mathrm{P}>\mathrm{N}, \mathrm{T}>\mathrm{P}$ i.e. $\mathrm{T}>\mathrm{P}>\mathrm{D}>\mathrm{N}$ or $\mathrm{T}>\mathrm{P}>\mathrm{N}>\mathrm{D} \ldots$ (i)

From II, we have: $\mathrm{R}>\mathrm{Q}, \mathrm{T}>\mathrm{R}$ i.e. $\mathrm{T}>\mathrm{R}>\mathrm{Q} \ldots$..ii)

From III, we have: $\mathrm{T}>\mathrm{Q}, \mathrm{R}>\mathrm{Q} \ldots$ (iii)

Clearly, from (i) and (ii), we conclude that $T$ is taller than each one of $P, N, D, R$ and $Q$. So, $T$ is the tallest.
11. Question: What does 'come' represent in a code language ?

## Statements:

I. 'pit na tac' means 'come and go' in that code language.
II. 'ja ta da' means 'you are good' in that code language.
III. 'na da rac' means 'you can come' in that code language.
A. Only I and II
B. Only II and III
C. Only I and III
D. All I, II and III
E. None of these

Answer \& Explanation

Answer: Option C

## Explanation:

To find the code for 'come', we need to have two statements which have one common code word and 'come' as the common word, which is there in I and III.
12. Question: How is the girl in the photograph related to Kunal?

## Statements:

I. Pointing to the photograph, Kunal said, "She is the mother of my father's only granddaughter".
II. Kunal has no siblings.
III. Pointing to the photograph, Kunal said, "She is the only daughter-in-law ofmy mother."
A. Any two of the three
B. Only I and II
C. Only II and III
D. Either only III or only I and II
E. None of these

Answer \& Explanation

## Explanation:

From I, we conclude that the girl is either Kunal's or his brother's wife. But, according to II, Kunal has no siblings.

So, from both I and II, we conclude that the girl is Kunal's wife.

From III, we find that the girl is the only daughter-in-law of Kunal's mother i.e. she is Kunal's wife.
13. Question: How many sons does $X$ have ?

## Statements:

I. $\quad \mathrm{Q}$ and U are brothers of T .
II. $\quad \mathrm{R}$ is sister of P and U .
III. $\quad \mathrm{R}$ and T are daughters of X .
A. Only I and II
B. Only II and III
C. All I, II and HI
D. I, II and III together are not sufficient
E. None of these

Answer \& Explanation

Answer: Option D

Explanation:

From I, II and III, we conclude that all P, Q, R, T and U are children of X. Of these, Q and U are male while $R$ and $T$ are female. But the sex of $P$ cannot be determined.

## Practice Test \#1 Data Sufficiency (218 Questions)

1. 

A garden store purchased a number of shovels and a number of rakes. If the cost of each shovel was $\$ 14$ and the cost of each rake was $\$ 9$, what was the total cost of the shovels and rakes purchased by the store?
(1) The ratio of the number of shovels to the number of rakes purchased by the store was 2 to 3 .
(2) The total number of shovels and rakes purchased by the store was 50 .
2.

Of the students who eat in a certain cafeteria, each student either likes or dislikes lima beans and each student either likes or dislikes brussels sprouts. Of these students, ${ }^{2}$ dislike lima beans; and of those who dislike lima beans, $\frac{3}{5}$ also dislike brussels sprouts. How many of the students like brussels sprouts but dislike lima beans?
(1) 120 students eat in the cafeteria.
(2) 40 of the students like lima beans.
3.

How many different prime numbers are factors of the positive integer n ?
(1) Four different prime numbers are factors of $2 n$.
(2) Four different prime numbers are factors of $n^{2}$.
4. 250-!-item-!-187;\#058\&000160

Is the product of a certain pair of integers even?
(1) The sum of the integers is odd.
(2) One of the integers is even and the other isodd.
5. 304-!-item-!-187;\#058\&000163

If $k$ is an integer and $2<k<8$, what is the value of $k$ ?
(1) k is a factor of 30 .
(2) k is a factor of 12 .
6.


On the number line above, is the product of $w, x, y$, and $z$ negative?
(1) $z$ is positive.
(2) The product of $w$ and $x$ is positive.

## 7.

If $y$ and $z$ are integers, is $y(z+1)$ odd?
(1) $y$ is odd
(2) $z$ is even.
8. 563-!-item-!-187; \#058\&000364

If $n$ and $m$ are positive integers, what is the remainder when $3^{\wedge}(4 n+2+m)$ is divided by 10 ?
(1) $n=2$
(2) $m=1$
9.

If $x$ is a positive integer, is $x<16 ?$
(1) $x$ is less than the average (arithmetic mean) of the first ten positive integers.
(2) $x$ is the square of an integer.
10.

Of the 800 students at a certain college, 250 students live on campus and are more than 20 years old. How many of the
800 students live on campus and are 20 years old or less?
(1) 640 students at the college are more than 20 years old.
(2) 60 students at the college are 20 years old or less and live off campus.
11.

If $p$ is a positive odd integer, what is the remainder when $p$ is divided by 4 ?
(1) When $p$ is divided by 8 , the remainder is 5 .
(2) $p$ is the sum of the squares of two positive integers.
12.

Of the 25 cars sold at a certain dealership yesterday, some had automatic transmission and some had antilock brakes. How many of the cars had automatic transmission but not antilock brakes?
(1) All of the cars that had antilock brakes also had automatic transmission.
(2) 2 of the cars had neither automatic transmission nor antilock brakes.
13.

Is $x$ to the right of -5 on the number line?
(1) $x$ is to the right of -7 on the number line.
(2) $x$ is between -4 and -3 on the number line.
14.

Is $y$ between -2 and 1 on the number line?
(1) $y$ is to the right of -1 on the number line.
(2) $y$ is to the left of 2 on the number line.
15.

Is $r$ to the right of -6 on the number line?
(1) $r$ is between -4 and -1 on the number line.
(2) $r$ is between -3 and 1 on the number line.
16.

Lines $n$ and $p$ lie in the $x y$-plane. Is the slope of line $n$ less than the slope of line $p$ ?
(1) Lines n and p intersect at the point $(5,1)$.
(2) The $y$-intercept of line $n$ is greater than the $y$-intercept of linep.
17.

Six countries in a certain region sent a total of 75 representatives to an international congress, and no two countries sent the same number of representatives. Of the six countries, if Country A sent the second greatest number of representatives, did Country A send at least 10 representatives?
(1) One of the six countries sent 41 representatives to the congress.
(2) Country A sent fewer than 12 representatives to the congress.
18. What is the hundredths digit of the decimal $z$ ?
(1) The tenths digit of $100 z$ is 2 .
(2) The units digit of $1,000 \mathrm{z}$ is 2 .
19. 1437-!-item-!-187;\#058\&000677

Is $z$ equal to the median of the three positive integers $x, y$, and $z$ ?
(1) $x<y+z$
(2) $y=z$

20
A certain one-day seminar consisted of a morning session and an afternoon session. If each of the 128 people attending the seminar attended at least one of the two sessions, how many of the people attended the morning session only?
(1) $\frac{3}{4}$ of the people attended both sessions.
(2) $\frac{7}{8}$ of the people attended the afternoon session.
21.

If a certain charity collected a total of 360 books, videos, and board games, how many videos did the charity collect?
(1) The number of books that the charity collected was 40 percent of the total number of books, videos, and board games that the charity collected.
(2) The number of books that charity collected was $66{ }_{3}^{2}$ percent of the total number of videos and board games that charity collected.
22.

Of the 800 sweaters at a certain store, 150 are red. How many of the red sweaters at the store are made of pure wool?
(1) 320 of the sweaters at the store are neither red nor made of pure wool.
(2) 100 of the red sweaters at the store are not made of pure wool.
23.

At least 100 students at a certain high school study Japanese. If 4 percent of the students at the school who study French also study Japanese, do more students at the school study French than Japanese?
(1) 16 students at the school study both French and Japanese.
(2) 10 percent of the students at the school who study Japanese also study French.
24.

At a certain restaurant, if each hamburger costs the same amount, what is the cost, excluding sales tax, of 1 hamburger?
(1) The total cost, including a 6 percent sales tax, is $\$ 4.77$ for 3 hamburgers.
(2) The total cost, including a 6 percent sales tax, is less than $\$ 6.50$ for 4 hamburgers.
25.

What is the value of $n$ ?
(1) n is between 0 and 1 .
(2) $\frac{7}{16}$ is $\frac{3}{8}$ more than $n$.
26. 2109-!-item-!-187;\#058\&002567

In a certain conference room each row of chairs has the same number of chairs, and the number of rows is 1 less than the number of chairs in a row. How many chairs are in a row?
(1) There is a total of 72 chairs.
(2) After 1 chair is removed from the last row, there is a total of 17 chairs in the last 2 rows.
27.

What is the price for a certain meal listed on a menu?
(1) The total paid for the meal, sales tax, and gratuity is $\$ 10.84$.
(2) The sales tax on food is 6 percent.
28.

Which of Company X and Company Y earned the greater gross profit last year?
(1) Last year the expenses of Company X were $\frac{5}{6}$ of the expenses of Company Y .
(2) Last year the revenues of Company X were $\$ 6$ million less than the revenues of Company Y .
29. 2517-!-item-!-187;\#058\&002771

What is the value of $6 x-10$ ?
(1) $3 x-5=16$
(2) $12 x-10=74$
30.

Is w greater than 1 ?
(1) $w+2>0$
(2) $w^{2}>1$
31.

At a refreshment stand, each can of soda sells for the same price and each sandwich sells for the same price. What is the total price for 2 sandwiches and 3 cans of soda at the stand?
(1) At the stand the total price for 1 sandwich and 1 can of soda is $\$ 3$.
(2) At the stand the total price for 3 sandwiches and 2 cans of soda is $\$ 8$.
32.

Al, Pablo, and Marsha shared the driving on a 1,500-mile trip. Which of the three drove the greatest distance on the trip?
(1) Al drove 1 hour longer than Pablo but at an average rate of 5 miles per hour slower than Pablo.
(2) Marsha drove 9 hours and averaged 50 miles per hour.
33.

If $x=\frac{1}{2}$, is $y$ equal to 1 ?
(1) $y^{2}\left(x+{ }^{1}\right)_{2}=1$
(2) $y(2 x-1)=2 x-y$
34. 2927-!-item-!-187;\#058\&003024

During an experiment, some water was removed from each of 6 water tanks. If the standard deviation of the volumes of water in the tanks at the beginning of the experiment was 10 gallons, what was the standard deviation of the volumes of water in the tanks at the end of the experiment?
(1) For each tank, 30 percent of the volume of water that was in the tank at the beginning of the experiment was removed during the experiment.
(2) The average (arithmetic mean) volume of water in the tanks at the end of the experiment was 63 gallons.
35. 3076-!-item-!-187;\#058\&003114

If $p$ and $n$ are positive integers and $p>n$, what is the remainder when $p^{2}-n^{2}$ is divided by 15 ?
(1) The remainder when $\mathrm{p}+\mathrm{n}$ is divided by 5 is 1 .
(2) The remainder when $\mathrm{p}-\mathrm{n}$ is divided by 3 is 1 .

If $x$ is positive, is $x>3$ ?
(1) $(x-1)^{2}>4$
(2) $(x-2)^{2}>9$
37. 3184-!-item-!-187; \#058\&003224

When 1,000 children were inoculated with a certain vaccine, some developed inflammation at the site of the inoculation and some developed fever. How many of the children developed inflammation but not fever?
(1) 880 children developed neither inflammation nor fever.
(2) 20 children developed fever.
38.

If $r$ and $s$ are positive integers, is $\frac{r}{s}$ an integer?
(1) Every factor of $s$ is also a factor of $r$.
(2) Every prime factor of $s$ is also a prime factor of $r$.
39. 3582-!-item-!-187; \#058\&003470

For the students in class $A$, the range of their heights is $r$ centimeters and the greatest height is $g$ centimeters. For the students in class $B$, the range of their heights is $s$ centimeters and the greatest height is $h$ centimeters. Is the least height of the students in class A greater than the least height of the students in class B ?
(1) $r<s$
(2) $g>h$
40.

Beth's bank charges a service fee on a regular checking account for each month in which the balance on the account falls
below $\$ 100$ at any time during the month. Did the bank charge a service fee on Beth's regular checking account last month?
(1) During last month, a total of $\$ 1,000$ was withdrawn from Beth's regular checking account.
(2) At the beginning of last month, Beth's regular checking account balance was $\$ 500$.
41.

Machines $X$ and $Y$ work at their respective constant rates. How many more hours does it take machine $Y$, working alone, to fill a production order of a certain size than it takes machine X , working alone?
(1) Machines $X$ and $Y$, working together, fill a production order of this size in two-thirds the time that machine $X$, working alone, does.
(2) Machine $Y$, working alone, fills a production order of this size in twice the time that machine $X$, working alone, does.
42.

John and Mary own shares of stock in a certain company. Does John own more shares of the company's stock than Mary?
(1) Mary owns more than 500 shares of the company's stock.
(2) The number of shares of the company's stock that John owns is 400 less than twice the number of shares of the company's stock that Mary owns.
43.

Each person in a certain group supports only one of the two candidates $R$ and $T$. Of the people in the group, 45 percent support Candidate R and the rest support Candidate T . How many people in the group are in favor of a flat tax?
(1) Of the people in the group who support Candidate R , 58 percent are in favor of a flattax.
(2) Of the people in the group who support Candidate T, 22 are in favor of a flat tax.
44.

In the $x y$-plane, at what two points does the graph of $y=(x+a)(x+b)$ intersect the $x$-axis?
(1) $a+b=-1$
(2) The graph intersects the $y$-axis at $(0,-6)$.
45.

How many of the 42 people in a group are employed students?
(1) 29 of the 42 people are employed.
(2) 24 of the 42 people are students.
46. 3960-!-item-!-187; \#058\&003582

How many hours did it take Helen to drive from her house to her parents' house?
(1) Helen's average speed on this trip was 72 kilometers per hour.
(2) If Helen's average speed on this trip had been 8 kilometers per hour greater, it would have taken her 1 hour less.
47.

Is $\mathrm{m} \neq \mathrm{n}$ ?
(1) $m+n<0$
(2) $m n<0$
48.

Last Friday each of the pets at a certain veterinary clinic was given either 1 treat or 2 treats. What was the total number of
treats given to pets at the clinic last Friday?
(1) The total number of pets at the clinic last Friday was 90.
(2) $\frac{2}{3}$ of the pets at the clinic last Friday were given 2 treats each.
49.

Does $x+y=5$ ?
(1) $4 x+y=17$
(2) $x+4 y=8$
50.

A construction company was paid a total of $\$ 500,000$ for a construction project. The company's only costs for the project were for labor and materials. Was the company's profit for the project greater than $\$ 150,000$ ?
(1) The company's total cost was three times its cost for materials.
(2) The company's profit was greater than its cost for labor.
51. 4284-!-item-!-187; \#058\&003822

What is the total value of Company H's stock?
(1) Investor P owns $\frac{1}{4}$ of the shares of Company H's total stock.
(2) The total value of Investor Q's shares of Company H's stock is $\$ 16,000$.
52. 4338-!-item-!-187;\#058\&003827

If the average (arithmetic mean) of four different numbers is 30 , how many of the numbers are greater than 30 ?
(1) None of the four numbers is greater than 60.
(2) Two of the four numbers are 9 and 10, respectively.
53. 4392-!-item-!-187;\#058\&003851

If $w x=y$, what is the value of $x y$ ?
(1) $w x^{2}=16$
(2) $y=4$
54. 4538-!-item-!-187;\#058\&004024

Is $x-y+1$ greater than $x+y-1$ ?
(1) $x>0$
(2) $y<0$

## 55. 4687---item-!-187;\#058\&004202

Malik's recipe for 4 servings of a certain dish requires $1 \frac{1}{2}$ cups of pasta. According to this recipe, what is the number of cups of pasta that Malik will use the next time he prepares this dish?
(1) The next time he prepares this dish, Malik will make half as many servings as he did the last time he prepared the dish.
(2) Malik used 6 cups of pasta the last time he prepared this dish.
56. 4741-!-item-!-187;\#058\&004206

During a sale, a clothing store sold each shirt at a price of $\$ 15$ and each sweater at a price of $\$ 25$. Did the store sell more
sweaters than shirts during the sale?
(1) The average (arithmetic mean) of the prices of all of the shirts and sweaters that the store sold during the sale was \$21.
(2) The total of the prices of all of the shirts and sweaters that the store sold during the sale was $\$ 420$.
57. 4795-!-item-!-187;\#058\&004223

During a sale, for each shirt that Mark purchased at the regular price, he also purchased a shirt at half the regular price. How many shirts did Mark purchase during the sale?
(1) The regular price of each of the shirts that Mark purchased during the sale was $\$ 21.50$.
(2) The total of the prices for all the shirts that Mark purchased during the sale was $\$ 129.00$.
58. 4895-!-item-!-187;\#058\&004290

What is the remainder when the positive integer x is divided by 3 ?
(1) When $x$ is divided by 6 , the remainder is 2 .
(2) When $x$ is divided by 15 , the remainder is 2 .
59. 4950-!-item-!-187; \#058\&004329

Ann deposited money into two new accounts, $A$ and $B$. Account $A$ earns 5 percent simple annual interest and account $B$ earns 8 percent simple annual interest. If there were no other transactions in the two accounts, then the amount of interest that account $B$ earned in the first year was how many dollars greater than the amount of interest that account $A$ earned in the first year?
(1) Ann deposited $\$ 200$ more in account $B$ than in accountA.
(2) The total amount of interest that the two accounts earned in the first year was $\$ 120$.
60. 5054-!-item-!-187;\#058\&004422

What was the percent increase in the population of City K from 1980 to 1990 ?
(1) In 1970 the population of City K was 160,000
(2) In 1980 the population of City K was 20 percent greater than it was in 1970, and in 1990 the population of City K was 30 percent greater than it was in 1970.
61. 5157-!-item-!-187;\#058\&004472

Of the 60 animals on a certain farm, $\frac{2}{3}$ are either pigs or cows. How many of the animals are cows?
(1) The farm has more than twice as many cows as it has pigs.
(2) The farm has more than 12 pigs.

## 62. 5212-!-item-!-187; \#058\&004501

In isosceles $\Delta$ RST what is the measure of $\angle R$
(1) The measure of $\angle T$ is $100^{\circ}$.
(2) The measure of $\angle S$ is $40^{\circ}$.
63. 5266-!-item-!-187;\#058\&004544

The cost of delivery for an order of desk chairs was $\$ 10.00$ for the first chair, and $\$ 1.00$ for each additional chair in the order. If an office manager placed an order for $n$ desk chairs, is $n>24$ ?
(1) The delivery cost for the order totaled more than $\$ 30.00$.
(2) The average (arithmetic mean) delivery cost per chair of the n chairs was $\$ 1.36$.
64. 5320-!-item-!-187;\#058\&004563

Are at least 10 percent of the people in Country $X$ who are 65 years old or older employed?
(1) In Country X, 11.3 percent of the population is 65 years old or older.
(2) In Country X, of the population 65 years old or older, 20 percent of the men and 10 percent of the women areemployed.
65. 5374-!-item-!-187;\#058\&004565

If $x$ is a positive number less than 10, is $z$ greater than the average (arithmetic mean) of $x$ and 10 ?
(1) On the number line, $z$ is closer to 10 than it is to $x$.
(2) $z=5 x$
66. 5428-!-item-!-187;\#058\&004588

In the finite sequence of positive integers $K_{1}, K_{2}, K_{3}, \ldots, K_{9}$, each term after the second is the sum of the two terms immediately preceding it. If $K_{5}=18$, what is the value of $K_{9}$ ?
(1) $K_{4}=11$
(2) $K_{6}=29$
67. 5482-!-item-!-187;\#058\&004634

Is $x+y$ negative?
(1) $x$ is negative.
(2) $y$ is positive.
68. 5536-!-item-!-187; \#058\&004638

What is the tens digit of the positive integer $r$ ?
(1) The tens digit of $\frac{r}{10}$ is 3 .
(2) The hundreds digit of $10 r$ is 6 .
69. 5825-!-item-!-187;\#058\&004737


In triangle $A B C$ above, what is the length of side $B C$ ?
(1) Line segment $A D$ has length 6 .
(2) $x=36$
70. 6067-!-item-!-187;\#058\&004849

Is the integer $x$ divisible by 6 ?
(1) $x+3$ is divisible by 3 .
(2) $x+3$ is an odd number.
71. 6125-!-item-!-187;\#058\&004856


In the figure above, if $x$ and $y$ are each less than 90 and $P S \| Q R$ is the length of segment $P Q$ less than the length of segment SR ?
(1) $x>y$
(2) $x+y>90$
72. 6179-!-item-!-187;\#058\&004900

A bookstore that sells used books sells each of its paperback books for a certain price and each of its hardcover books for a certain price. If Joe, Maria, and Paul bought books in this store, how much did Maria pay for 1 paperback book and 1 hardcover book?
(1) Joe bought 2 paperback books and 3 hardcover books for $\$ 12.50$.
(2) Paul bought 4 paperback books and 6 hardcover books for $\$ 25.00$.
73. 6279-!-item-!-187;\#058\&004943

What is the average (arithmetic mean) of eleven consecutive integers?
(1) The average of the first nine integers is 7 .
(2) The average of the last nine integers is 9 .
74. 6333-!-item-!-187;\#058\&004944

If $x$ and $y$ are integers, what is the value of $x+y$ ?
(1) $690<x<y<696$
(2) $692<x<y<695$
75. 6387-!-item-!-187; \#058\&004958

Is x less than 20 ?
(1) The sum of $x$ and $y$ is less than 20.
(2) y is less than 20 .
76. 6441-!-item-!-187;\#058\&005031

Is the integer $k$ divisible by 4 ?
(1) 8 k is divisible by 16 .
(2) 9 k is divisible by 12 .
77. 6741-!-item-!-187;\#058\&005163

If n is an integer between 10 and 99 , is $\mathrm{n}<80$ ?
(1) The sum of the two digits of n is a prime number.
(2) Each of the two digits of n is a prime number.
78. 6841-!-item-!-187;\#058\&005248

For each customer, a bakery charges $p$ dollars for the first loaf of bread bought by the customer and charges $q$ dollars for each additional loaf bought by the customer. What is the value of $p$ ?
(1) A customer who buys 2 loaves is charged 10 percent less per loaf than a customer who buys a single loaf.
(2) A customer who buys 6 loaves of bread is charged 10 dollars.
79. 6946-!-item-!-187; \#058\&005390

If the terms of a sequence are $t_{1}, t_{2}, t_{3}, \ldots, t_{n}$, what is the value of $n$ ?
(1) The sum of the $n$ terms is 3,124 .
(2) The average (arithmetic mean) of the $n$ terms is 4 .

## 80. 7243-!-item-!-187; \#058\&005480

If $x$ is a negative number, what is the value of $x$ ?
(1) $x^{2}=1$
(2) $x^{2}+3 x+2=0$

## 81. 7301-!-item-!-187;\#058\&005482



In the figure above, what is the ratio $\frac{K N}{M N}$
(1) The perimeter of rectangle KLMN is 30 meters.
(2) The three small rectangles have the same dimensions.
82. 7356-!-item-!-187;\#058\&005489

Is $x \nmid y|?|$
(1) $x^{2}>y^{2}$
(2) $x>y$

If $u, v$, and $w$ are integers, is $u>0$ ?
(1) $u=v^{2}+1$
(2) $u=w^{4}+1$
84. 7517-!-item-!-187;\#058\&005572

If $p$ is a prime number greater than 2 , what is the value of $p$ ?
(1) There are a total of 100 prime numbers between 1 and $p+1$.
(2) There are a total of $p$ prime numbers between 1 and 3,912.
85. 7713-!-item-!-187;\#058\&005641

Is k positive?
(1) $k$ is between -2 and 3 on the number line.
(2) $k$ is between 1 and 2 on the numberline.

## 86. 7767-!-item-!-187;\#058\&005660

Each of the students in a certain class received a single grade of P, F, or I. What percent of the students in the class were females?
(1) Of those who received a $P, 40$ percent were females.
(2) Of those who received either an F or I, 80 percent were males.

## 87. 7824-!-item-!-187;\#058\&005664



In the figure above, segments PQ and PR are each parallel to one of the rectangular coordinate axes. What is the sum of the coordinates of point $P$ ?
(1) The x -coordinate of point Q is -1 .
(2) The $y$-coordinate of point $R$ is 1 .
88. 8066-!-item-!-187;\#058\&005745

What is the greatest common divisor of positive integers m and n ?
(1) $m$ is a prime number.
(2) $2 \mathrm{n}=7 \mathrm{~m}$
89. 8212-!-item-!-187;\#058\&005846

What is the retail price of a certain calculator?
(1) The retail price of the calculator is $\$ 2.00$ more than thewholesale price.
(2) The retail price of the calculator is 50 percent more than the $\$ 4.00$ wholesale price.
90. 8266-!-item-!-187; \#058\&005947

On Jane's credit card account, the average daily balance for a 30-day billing cycle is the average (arithmetic mean) of the daily balances at the end of each of the 30 days. At the beginning of a certain 30-day billing cycle, Jane's credit card account had a balance of $\$ 600$. Jane made a payment of $\$ 300$ on the account during the billing cycle. If no other amounts were added to or subtracted from the account during the billing cycle, what was the average daily balance on Jane's account for the billing cycle?
(1) Jane's payment was credited on the 21st day of the billing cycle.
(2) The average daily balance through the 25th day of the billing cycle was $\$ 540$.
91. 8417-!-item-!-187;\#058\&005991

What is the remainder when the positive integer n is divided by 6 ?
(1) $n$ is a multiple of 5 .
(2) n is a multiple of 12 .
92. 8471-!-item-!-187;\#058\&005997

Is the integer $r$ divisible by 3 ?
(1) $r$ is the product of 4 consecutive positive integers.
(2) $r<25$
93. 8525-!-item-!-187;\#058\&006006

If the integer $n$ is greater than 1 , is $n$ equal to 2 ?
(1) $n$ has exactly two positive factors.
(2) The difference of any two distinct positive factors of n is odd.
94. 8579-!-item-!-187;\#058\&006012

What is the value of $y$ ?
(1) y is an odd integer between 28 and 34 .
(2) $31<y<36$
95. 8634-!-item-!-187; \#058\&006039

Is $\frac{1}{a-b}<\mathrm{b}-\mathrm{a}$ ?
(1) $a<b$.
(2) $1<|a-b|$.
96. 8688-!-item-!-187; \#058\&006049

If $x$ and $y$ are integers greater than 1 , is $x$ a multiple of $y$ ?
(1) $3 y^{2}+7 y=x$.
(2) $x^{2}-x$ is a multiple of $y$.
97. 8745-!-item-!-187;\#058\&006054

Is $\overline{(x-3)^{2}}=3-x$
(1) $x \neq 3$
(2) $-x|x|>0$
98. 8799-!-item-!-187;\#058\&006082

What is the value of $5 x^{2}+4 x-1$ ?
(1) $x(x+2)=0$
(2) $x=0$
99. 9270-!-item-!-187;\#058\&006322

If $\mathrm{m}>0$ and $\mathrm{n}>0$, is $\frac{m+x}{n+x}>\frac{m}{n}$ ?
(1) $m<n$
(2) $x>0$
100. 9327-!-item-!-187;\#058\&006480


In the rectangular coordinate system shown above, does the line $k$ (not shown) intersect quadrant II ?
(1) The slope of $k$ is $-\frac{1}{6}$
(2) The y -intercept of k is -6 .
101. 9432-!-item-!-187; \#058\&006634

If the sum of three different numbers is 54 , what is the largest number?
(1) The largest number is twice the smallest number.
(2) The sum of the two smaller numbers is 30 .
102. 9486-!-item-!-187;\#058\&006637

If $M$ is a finite set of negative integers, is the total number of integers in $M$ an odd number?
(1) The product of all the integers in $M$ is odd.
(2) The product of all the integers in $M$ is negative.
103. 9540-!-item-!-187; \#058\&006638

A certain bag contains red, blue, and green marbles. What is the ratio of the number of green marbles to the number of red marbles in the bag?
(1) The number of blue marbles in the bag is 2 times the number of green marbles in the bag.
(2) The number of blue marbles in the bag is 3 times the number of red marbles in the bag.
104. 9643-!-item-!-187;\#058\&006681

What is the value of $x$ ?
(1) $y-x=y-6$
(2) $x+2 y=10$

## 105. 9789-!-item-!-187;\#058\&006817

What is the number of members of Club X who are at least 35 years of age?
(1) Exactly $\frac{3}{4}$ of the members of Club $X$ are under 35 years of age.
(2) The 64 women in Club $X$ constitute 40 percent of the club's membership.

## 106. 9843-!-item-!-187; \#058\&006850

What was Jean's insurance premium in 1995 ?
(1) The ratio of Jean's insurance premium in 1995 to her insurance premium in 1994 was_ ${ }_{5}$.
(2) Jean's insurance premium in 1995 was 20 percent more than her insurance premium in 1994.
107. 9897-!-item-!-187;\#058\&006904

A combined total of 55 lightbulbs are stored in two boxes; of these, a total of 7 are broken. If there are exactly 2 broken bulbs in the first box, what is the number of bulbs in the second box that are not broken?
(1) In the first box, the number of bulbs that are not broken is 15 times the number of broken bulbs.
(2) The total number of bulbs in the first box is 9 more than the total number of bulbs in thesecond box.
108. 10385-!-item-!-187; \#058\&007204

Three friends rented a car for a week and divided the cost equally. What was the total cost of renting the car?
(1) If the three friends had kept the car for a second week, they could have obtained the two-week rate, which was 1.5 times the cost of a one-week rental.
(2) If a fourth friend had joined the three friends and the cost had been divided equally among the four friends, the cost to each of the original three would have been reduced by $\$ 15$.
109. 10439-!-item-!-187; \#058\&007237

If $R=1+2 x y+x^{2} y^{2}$, what is the value of $x y$ ?
(1) $R=0$
(2) $x>0$
110. 10493-!-item-!-187;\#058\&007240

If $z^{n}=1$, what is the value of $z$ ?
(1) $n$ is a nonzero integer.
(2) $z>0$
111. 10884-!-item-!-187;\#058\&007442

If $x, y$, and $z$ are positive integers, what is the remainder when $100 x+10 y+z$ is divided by 7 ?
(1) $y=6$
(2) $z=3$
112. 11176-!-item-!-187;\#058\&007606

Each person attending a fund-raising party for a certain club was charged the same admission fee. How many people attended the party?
(1) If the admission fee had been $\$ 0.75$ less and 100 more people had attended, the club would have received the same amount in admission fees.
(2) If the admission fee had been $\$ 1.50$ more and 100 fewer people had attended, the club would have received the same amount in admission fees.
113. 11760-!-item-!-187;\#058\&007855

For a certain set of $n$ numbers, where $n>1$, is the average (arithmetic mean) equal to the median?
(1) If the $n$ numbers in the set are listed in increasing order, then the difference between any pair of successive numbers in the set is 2 .
(2) The range of the $n$ numbers in the set is $2(n-1)$.
114. 11816-!-item-!-187;\#058\&007868

Henry purchased 3 items during a sale. He received a 20 percent discount off the regular price of the most expensive item and a 10 percent discount off the regular price of each of the other 2 items. Was the total amount of the 3 discounts greater than 15 percent of the sum of the regular prices of the 3 items?
(1) The regular price of the most expensive item was $\$ 50$, and the regular price of the next most expensive item was $\$ 20$.
(2) The regular price of the least expensive item was $\$ 15$.
115. 11870-!-item-!-187;\#058\&007880

If $x y=-18$, is $x$ less than $y$ ?
(1) $x<0$
(2) $y<10$
116. 11924-!-item-!-187;\#058\&007881

An insurance company has a contract with a medical laboratory to pay a discounted price for a certain medical test performed on patients referred to the laboratory by the insurance company. If the laboratory's original bill for this medical test on a patient referred by the insurance company is $\$ 230$, what is the percent discount specified by the contract between the laboratory and the insurance company?
(1) The insurance company is required to pay only 20 percent of the original bill for the test.
(2) The insurance company is required to pay $\$ 46$ for the test.
117. 11978-!-item-!-187;\#058\&007947

If $P, Q$, and $R$ are points on the number line, what is the distance between $P$ and $R$ ?
(1) $Q$ is between $P$ and $R$.
(2) The distance between P and Q is 5 .
118. 12032-!-item-!-187;\#058\&007948

If $x$ is positive, what is the value of $y$ ?
(1) $5 x=15$
(2) $x y+y=18$
119. 12086-!-item-!-187; \#058\&008079

A contractor combined $x$ tons of a gravel mixture that contained 10 percent gravel $G$, by weight, with $y$ tons of a mixture that contained 2 percent gravel $G$, by weight, to produce $z$ tons of a mixture that was 5 percent gravel $G$, by weight. What is the value of $x$ ?
(1) $y=10$
(2) $z=16$
120. 12140-!-item-!-187;\#058\&008146

How many of the students in a certain class are taking both a history and a science course?
(1) Of all the students in the class, 50 are taking a history course.
(2) Of all the students in the class, 70 are taking a science course.
121. 12194-!-item-!-187;\#058\&008148

Pat bought 5 pounds of apples. How many pounds of pears could Pat have bought for the same amount of money?
(1) One pound of pears costs $\$ 0.50$ more than one pound of apples.
(2) One pound of pears costs $1{ }_{-2}^{1}$ times as much as one pound of apples.
122. 12343-!-item-!-187;\#058\&008383

During a 40-mile trip, Marla traveled at an average speed of $x$ miles per hour for the first $y$ miles of the trip and at an average speed of $1.25 x$ miles per hour for the last $40-y$ miles of the trip. The time that Marla took to travel the 40 miles was what percent of the time it would have taken her if she had traveled at an average speed of $x$ miles per hour for the entire trip?
(1) $x=48$
(2) $y=20$

## 123. 12586-!-item-!-187;\#058\&008871

If integer $p$ is greater than 1 , is $p$ a prime number?
(1) $p$ is odd.
(2) The only positive factors of $p$ are 1 and $p$.
124. 12829-!-item-!-187;\#058\&008976

A certain company divides its total advertising budget into television, radio, newspaper, and magazine budgets in the ratio of $8: 7: 3: 2$, respectively. How many dollars are in the radio budget?
(1) The television budget is $\$ 18,750$ more than the newspaper budget.
(2) The magazine budget is $\$ 7,500$.

## 125. 12932-!-item-!-187;\#058\&009020

The sequence $a_{1}, a_{2}, a_{3}, \ldots, a_{n}$ of $n$ integers is such that $a_{k}=k$ if $k$ is odd and $a_{k}=-a_{k-1}$ if $k$ is even. Is the sum of the terms in the sequence positive?
(1) $n$ is odd.
(2) $a_{n}$ is positive.
126. 13035-!-item-!-187;\#058\&009047
$S$ is a finite set of numbers. Does $S$ contain more negative numbers than positive numbers?
(1) The product of all the numbers in S is $-1,200$.
(2) There are 6 numbers in $S$.
127. 13089-!-item-!-187;\#058\&009187

On the number line, if the number $k$ is to the left of the number $t$, is the product $k t$ to the right of $t$ ?
(1) $t<0$
(2) $k<1$
128. 13143-!-item-!-187;\#058\&009201

The points $A, B, C$, and $D$ are on a number line, not necessarily in that order. If the distance between $A$ and $B$ is 18 and the distance between $C$ and $D$ is 8 , what is the distance between $B$ and $D$ ?
(1) The distance between $C$ and $A$ is the same as the distance between $C$ and $B$.
(2) $A$ is to the left of $D$ on the number line.
129. 13198-!-item-!-187; \#058\&009205

Is $\frac{x+1}{x-3}<0$ ?
(1) $-1<x<1$
(2) $x^{2}-4<0$
130. 13252-!-item-!-187;\#058\&009207

In the sequence of positive numbers $x_{1}, x_{2}, x_{3}, \ldots$, what is the value of $x_{1}$ ?
(1) $\mathrm{x}_{I}=\frac{x_{l-1}}{2}$ for all integers $/>1$
(2) $x_{5}=\frac{x_{4}}{x_{4}+1}$
131. 13306-!-item-!-187;\#058\&009213

The positive integer $k$ has exactly two positive prime factors, 3 and 7 . If $k$ has a total of 6 positive factors, including 1 and $k$,
what is the value of $k$ ?
(1) $3^{2}$ is a factor of $k$.
(2) $7^{2}$ is not a factor of $k$.

## 132. 13360-!-Item-!-187; \#058\&009215

If $l$ and k are lines in the xy -plane, is the product of the slopes of $l$ and k equal to -1 ?
(1) Line $l$ passes through the origin and the point $(1,2)$.
(2) Line k has x -intercept 4 and y -intercept 2.
133. 13609-!-item-!-187;\#058\&009567

At a certain company, the average (arithmetic mean) number of years of experience is 9.8 years for the male employees and 9.1 years for the female employees. What is the ratio of the number of the company's male employees to the number of the company's female employees?
(1) There are 52 male employees at the company.
(2) The average number of years of experience for the company's male and female employees combined is 9.3 years.
134. 13755-!-item-!-187;\#058\&009724

An attorney charged a fee for estate planning services for a certain estate. The attorney's fee was what percent of the assessed value of the estate?
(1) The assessed value of the estate was $\$ 1.2$ million.
(2) The attorney charged $\$ 2,400$ for the estate planning services.
135. 13860-!-item-!-187;\#058\&009754

During a one-day sale, a store sold each sweater of a certain type for $\$ 30$ more than the store's cost to purchase each sweater. How many of these sweaters were sold during the sale?
(1) During the sale, the total revenue from the sale of these sweaters was $\$ 270$.
(2) During the sale, the store sold each of these sweaters at a price that was 50 percent greater than the store's cost to purchase each sweater.
136. 13960-!-item-!-187; \#058\&009782

An integer greater than 1 that is not prime is called composite. If the two-digit integer n is greater than 20, is n composite?
(1) The tens digit of n is a factor of the units digit of n .
(2) The tens digit of $n$ is 2 .
137. 14062-!-item-!-187;\#058\&009802

If $x$ is an integer, is $\left(x^{2}+1\right)(x+5)$ an even number?
(1) $x$ is an odd number.
(2) Each prime factor of $x^{2}$ is greater than 7 .
138. 14162-!-item-!-187;\#058\&009822

A certain theater has a total of 884 seats, of which 500 are orchestra seats and the rest are balcony seats. When tickets for all the seats in the theater are sold, the total revenue from ticket sales is $\$ 34,600$. What was the theater's total revenue from ticket sales for last night's performance?
(1) The price of an orchestra seat ticket is twice the price of a balcony seat ticket.
(2) For last night's performance, tickets for all the balcony seats were sold, but only 80 percent of the tickets for the orchestra seats were sold.

## 139. 14263-!-item-!-187; \#058\&009908

If it took Carlos ${ }^{1}$ hour to cycle from his house to the library yesterday, was the distance that he cycled greater than 6 miles? (Note: 1 mile $=5,280$ feet)
(1) The average speed at which Carlos cycled from his house to the library yesterday was greater than 16 feet per second.
(2) The average speed at which Carlos cycled from his house to the library yesterday was less than 18 feet per second.
140. 14319-!-item-!-187;\#058\&009938

At a certain pet shop, $\frac{1}{3}$ of the pets are dogs and $\frac{1}{5}$ of the pets are birds. How many of the pets are dogs?
(1) There are 30 birds at the pet shop.
(2) There are 20 more dogs than birds at the pet shop.
141. 14373-!-item-!-187;\#058\&009939

To fill an order on schedule, a manufacturer had to produce 1,000 tools per day for $n$ days. What is the value of $n$ ?
(1) Because of production problems, the manufacturer produced only 600 tools per day during the first 5 days.
(2) Because of production problems, the manufacturer had to produce 1,500 tools per day on each of the last 4 days in order to meet the schedule.
142. 14473-!-item-!-187;\#058\&010003

If $x$ is a positive integer, what is the least common multiple of $x, 6$, and 9 ?
(1) The least common multiple of $x$ and 6 is 30 .
(2) The least common multiple of $x$ and 9 is 45 .
143. 14534-!-item-!-187;\#058\&010011


In the figure shown, the measure of angle PRS is how many degrees greater than the measure of angle PQR ?
(1) The measure of angle QPR is $30^{\circ}$
(2) The sum of the measures of angles PQR and PRQ is $150^{\circ}$
144. 14635-!-item-!-187;\#058\&010061

If $\$ 1,000$ is deposited in a certain bank account and remains in the account along with any accumulated interest, the dollar amount of interest, I, earned by the deposit in the first $n$ years is given by the formula $I=1000 〔\left(1+\frac{r}{60}\right)^{n}-1 〕$, where $r$ percent is the annual interest rate paid by the bank. Is the annual interest rate paid by the bank greater than 8 percent?
(1) The deposit earns a total of $\$ 210$ in interest in the first two years.
(2) $\left(1+\frac{r}{100}\right)^{2}>1.15$
145. 14689-!-item-!-187;\#058\&010088

On her way home from work, Janet drives through several tollbooths. Is there a pair of these tollbooths that are less than 10 miles apart?
(1) The first tollbooth and the last tollbooth are 25 miles apart.
(2) Janet drives through 4 tollbooths on her way home from work.
146. 14746-!-item-!-187;\#058\&010097

If the symbol $\Delta$ represents either addition or multiplication, which operation does it represent?
(1) $\mathrm{a} \Delta \mathrm{b}=\mathrm{b} \Delta \mathrm{a}$ for all numbers a and b .
(2) $\mathrm{a} \Delta(\mathrm{b}-\mathrm{c})=(\mathrm{a} \Delta \mathrm{b})-(\mathrm{a} \Delta \mathrm{c})$ for all numbers $\mathrm{a}, \mathrm{b}$, and c .
147. 14800-!-item-!-187;\#058\&010134

Each employee on a certain task force is either a manager or a director. What percent of the employees on the task force are directors?
(1) The average (arithmetic mean) salary of the managers on the task force is $\$ 5,000$ less than the average salary of all employees on the task force.
(2) The average (arithmetic mean) salary of the directors on the task force is $\$ 15,000$ greater than the average salary of all employees on the task force.
148. 14854-!-item-!-187;\#058\&010192

In the $x y$-plane, does the line with equation $y=3 x+2$ contain the point $(r, s) ?$
(1) $(3 r+2-s)(4 r+9-s)=0$
(2) $(4 r-6-s)(3 r+2-s)=0$
149. 14908-!-item-!-187;\#058\&010196

If $m, r, x$, and $y$ are positive, is the ratio of $m$ to $r$ equal to the ratio of $x$ to $y$ ?
(1) The ratio of $m$ to $y$ is equal to the ratio of $x$ to $r$.
(2) The ratio of $m+x$ to $r+y$ is equal to the ratio of $x$ to $y$.
150. 15103-!-item-!-187;\#058\&010253

If $a, b, k$, and $m$ are positive integers, is $a^{k}$ a factor of $b^{m}$ ?
(1) $a$ is a factor of $b$.
(2) $k \leq m$
151. 15157-!-item-!-187;\#058\&010256 Is $\mathrm{x}>0.05$ ?
(1) $x>{ }_{-40}$
(2) $x$ is greater than 3 percent of 50 .
152. 15303-!-item-!-187;\#058\&010299

If $x y z>0$, is $x>0$ ?
(1) $x y>0$
(2) $x z>0$
153. 15354-!-item-!-187;\#058\&010304

A wooden rod is cut into two pieces. What is the length of the longer piece?
(1) One of the pieces is 20 inches longer than the other piece.
(2) The length of the shorter piece is ${ }^{1}$ the length of the longer piece.
154. 15408-!-item-!-187; \#058\&010332

The sum of positive integers $x$ and $y$ is 77 . What is the value of $x y$ ?
(1) $x=y+1$
(2) $x$ and $y$ have the same tens digit.
155. 15462-!-item-!-187;\#058\&010358

Did it take Pei more than 2 hours to walk a distance of 10 miles along a certain trail? ( 1 mile $=1.6$ kilometers, rounded to the nearest tenth.)
(1) Pei walked this distance at an average rate of less than 6.4 kilometers per hour.
(2) On average, it took Pei more than 9 minutes per kilometer to walk this distance.
156. 15516-!-item-!-187;\#058\&010359

A store sells milk in cartons of two sizes, one-half gallon and one-quarter gallon. If the store sold a total of 300 cartons of milk yesterday, how many gallons of milk did it sell yesterday?
(1) Yesterday the store sold 120 one-quarter-gallon cartons of milk.
(2) Yesterday the store sold 90 gallons of milk in one-half-gallon cartons.
157. 15663-!-item-!-187;\#058\&010465

If $n$ is a positive integer and $r$ is the remainder when $4+7 n$ is divided by 3 , what is the value of $r$ ?
(1) $n+1$ is divisible by 3 .
(2) $n>20$
158. 15810-!-item-!-187;\#058\&010518

Each of the 25 balls in a certain box is either red, blue, or white and has a number from 1 to 10 painted on it. If one ball is to be selected at random from the box, what is the probability that the ball selected will either be white or have an even number painted on it?
(1) The probability that the ball will both be white and have an even number painted on it is 0 .
(2) The probability that the ball will be white minus the probability that the ball will have an even number painted on it is 0.2.
159. 15957-!-item-!-187;\#058\&010660

If $n$ is a positive integer and $r$ is the remainder when $(n-1)(n+1)$ is divided by 24 , what is the value of $r$ ?
(1) $n$ is not divisible by 2 .
(2) $n$ is not divisible by 3 .
160. 16057-!-item-!-187;\#058\&010664

If Company M ordered a total of 50 computers and printers and Company N ordered a total of 60 computers and printers, how many computers did Company M order?
(1) Company $M$ and Company $N$ ordered the same number of computers.
(2) Company N ordered 10 more printers than Company M.
161. 16203-!-item-!-187;\#058\&010722

If the average (arithmetic mean) of the five numbers $x, 7,2,16$, and 11 is equal to the median of the five numbers, what is the value of $x$ ?
(1) $7<x<11$
(2) $x$ is the median of the five numbers.
162. 16257-!-item-!-187;\#058\&010730

What fraction of this year's graduating students at a certain college are males?
(1) Of this year's graduating students, 33 percent of the males and 20 percent of the females transferred from another college.
(2) Of this year's graduating students, 25 percent transferred from another college.
163. 16312-!-item-!-187;\#058\&010731

Linda put an amount of money into each of two new investments, $A$ and $B$, that pay simple annual interest. If the annual interest rate of investment $B$ is 1.5 times that of investment $A$, what amount did Linda put into investment $A$ ?
(1) The interest for 1 year is $\$ 50$ for investment $A$ and $\$ 150$ for investment B.
(2) The amount that Linda put into investment $B$ is twice the amount that she put into investment $A$.
164. 16412-!-item-!-187;\#058\&010774

At a two-day seminar, 90 percent of those registered attended the seminar on the first day. What percent of those registered did not attend the seminar on either day?
(1) A total of 1,000 people registered for the two-day seminar.
(2) Of those registered, 80 percent attended the seminar on the second day.
165. 16466-!-item-!-187;\#058\&010795

Of the 1,400 college teachers surveyed, 42 percent said that they considered engaging in research an essential goal. How many of the college teachers surveyed were women?
(1) In the survey, 36 percent of the men and 50 percent of the women said that they considered engaging in researchan essential goal.
(2) In the survey, 288 men said that they considered engaging in research an essential goal.
166. 16522-!-item-!-187;\#058\&010838

In the $x y$-coordinate plane, the slope of line $l$ is $\frac{3}{4}$. Does line $l$ pass through the point $\left(-\frac{2}{2}, \frac{1}{3}\right)$ ?
(1) Line $l$ passes through the point $(4,4)$.
(2) Line $l$ passes through the point $(-4,-2)$.
167. 16626-!-item-!-187;\#058\&010859

If $x, y$, and $z$ are integers and $x y+z$ is an odd integer, is $x$ an even integer?
(1) $x y+x z$ is an even integer.
(2) $y+x z$ is an odd integer.
168. 16680-!-item-!-187;\#058\&010861

On the number line, the distance between $x$ and $y$ is greater than the distance between $x$ and $z$. Does $z$ lie between $x$ and $y$ on the number line?
(1) $x y z<0$
(2) $x y<0$

## 169. 16735-!-item-!-187;\#058\&010875

If the integers a and $n$ are greater than 1 and the product of the first 8 positive integers is a multiple of $a^{n}$, what is the value of a?
(1) $a^{n}=64$
(2) $n=6$
170. 16927-!-item-!-187;\#058\&010946

If $n$ and $t$ are positive integers, what is the greatest prime factor of the product $n t$ ?
(1) The greatest common factor of n and t is 5 .
(2) The least common multiple of n and t is 105 .
171. 16981-!-item-!-187;\#058\&010960

Is $|\mathrm{x}-\mathrm{y}|>|\mathrm{x}|-|\mathrm{y}|$ ?
(1) $y<x$
(2) $x y<0$
172. 17130-!-item-!-187;\#058\&011022

If $m, k, x$, and $y$ are positive numbers, is $m x+k y>k x+m y$ ?
(1) $m>k$
(2) $x>y$
173. 17281-!-item-!-187;\#058\&011070

If $N$ is a positive integer, is the units digit of $N$ equal to zero?
(1) 14 and 35 are factors of N .
(2) $N=\left(2^{5}\right)\left(3^{2}\right)\left(5^{7}\right)\left(7^{6}\right)$
174. 17336-!-item-!-187;\#058\&011114

In the xy-plane, what is the $y$-intercept of line $l$
(1) The slope of line $l$ is 3 times its $y$-intercept.
(2) The $x$-intercept of line $l$ is $-\frac{1}{3}$.
175. 17390-!-item-!-187;\#058\&011123

The sum of the integers in list $S$ is the same as the sum of the integers in list $T$. Does $S$ contain more integers than $T$ ?
(1) The average (arithmetic mean) of the integers in $S$ is less than the average of the integers in $T$.
(2) The median of the integers in S is greater than the median of the integers in T .
176. 17491-!-item-!-187;\#058\&011140

If $x$ and $y$ are positive integers, is the product $x y$ even?
(1) $5 x-4 y$ is even.
(2) $6 x+7 y$ is even.
177. 17595-!-item-!-187;\#058\&011159

If $x$ and $y$ are positive integers, what is the value of $x y$ ?
(1) The greatest common factor of $x$ and $y$ is 10 .
(2) The least common multiple of $x$ and $y$ is 180 .
178. 17649-!-item-!-187;\#058\&011192

If there are more than two numbers in a certain list, is each of the numbers in the list equal to 0 ?
(1) The product of any two numbers in the list is equal to 0 .
(2) The sum of any two numbers in the list is equal to 0 .

## 179. 17750-!-item-!-187;\#058\&011285

A manufacturer conducted a survey to determine how many people buy products P and Q . What fraction of the people surveyed said that they buy neither product $P$ nor product $Q$ ?
(1) $\frac{1}{3}$ of the people surveyed said that they buy product $P$ but not product $Q$.
(2) $\frac{1}{2}$ of the people surveyed said that they buy product Q .
180. 17851-!-item-!-187;\#058\&011342

Are $x$ and $y$ both positive?
(1) $2 x-2 y=1$
(2) $\frac{x}{y}>1$
181. 17908-!-item-!-187;\#058\&011358


In the figure shown, what is the value of $x$ ?
(1) The length of line segment $Q R$ is equal to the length of line segment RS.
(2) The length of line segment ST is equal to the length of line segment TU.
182. 17963-!-item-!-187;\#058\&011379

In a certain year, the difference between Mary's and Jim's annual salaries was twice the difference between Mary's and Kate's annual salaries. If Mary's annual salary was the highest of the 3 people, what was the average (arithmetic mean) annual salary of the 3 people that year?
(1) Jim's annual salary was $\$ 30,000$ that year.
(2) Kate's annual salary was $\$ 40,000$ that year.
183. 18017-!-item-!-187;\#058\&011390

The positive integers $x, y$, and $z$ are such that $x$ is a factor of $y$ and $y$ is a factor of $z$. Is $z$ even?
(1) $x z$ is even.
(2) $y$ is even.
184. 18071-!-item-!-187;\#058\&011405

Jack and Mark both received hourly wage increases of 6 percent. After the wage increases, Jack's hourly wage was how many dollars per hour more than Mark's?
(1) Before the wage increases, Jack's hourly wage was $\$ 5.00$ per hour more than Mark's.
(2) Before the wage increases, the ratio of Jack's hourly wage to Mark's hourly wage was 4 to 3 .
185. 18511-!-item-!-187;\#058\&011604

Is $x$ between 0 and 1 ?
(1) $x$ is between $-\frac{1}{-2}$ and_ ${ }^{3}{ }_{2}$
(2) $\frac{3}{4}$ is $\frac{1}{4}$ more than $x$.
186. 18566-!-item-!-187;\#058\&011610

If $0<x<y$, what is the value of $\frac{(x+y)^{2}}{(x-y)^{2}}$ ?
(1) $x^{2}+y^{2}=3 x y$
(2) $x y=3$
187. 18620-!-item-!-187;\#058\&011611

If $x, y$, and $z$ are integers greater than 1 , what is the value of $x+y+z$ ?
(1) $x y z=70$
(2) $\frac{x}{y z}=\frac{7}{10}$
188. 18674-!-item-!-187;\#058\&011626

Is $p+p z=p$ ?
(1) $p=0$
(2) $z=0$

## 189. 18728-!-item-!-187;\#058\&011689

If the operation $\Delta$ is one of the four arithmetic operations addition, subtraction, multiplication, and division, is $(6 \Delta 2) \Delta$ $4=6 \Delta(2 \Delta 4)$ ?
(1) $3 \Delta 2>3$
(2) $3 \Delta 1=3$

## 190. 18785-!-item-!-187;\#058\&011838



On the number line shown, is zero halfway between $r$ and $s$ ?
(1) $s$ is to the right of zero.
(2) The distance between $t$ and $r$ is the same as the distance between $t$ and $-s$.
191. 18839-!-item-!-187;\#058\&011851

If the product of the three digits of the positive integer $k$ is 14 , what is the value of $k$ ?
(1) $k$ is an odd integer.
(2) $k<700$
192. 18939-!-item-!-187;\#058\&011984

Of the 75 houses in a certain community, 48 have a patio. How many of the houses in the community have a swimming pool?
(1) 38 of the houses in the community have a patio but do not have a swimming pool.
(2) The number of houses in the community that have a patio and a swimming pool is equal to the number of houses in the community that have neither a swimming pool nor a patio.
193. 18993-!-item-!-187;\#058\&012050

The attendees at a certain convention purchased a total of 15,000 books. How many of these attendees were female?
(1) There was a total of 4,000 attendees at the convention.
(2) The male attendees purchased an average (arithmetic mean) of 3 books each, and the female attendees purchased an average of 5 books each.
194. 19047-!-item-!-187;\#058\&012065

If $x$ and $y$ are positive integers, what is the value of $x+y$ ?
(1) $2^{x} 3^{y}=72$
(2) $2^{x} 2^{y}=32$
195. 19101-!-item-!-187;\#058\&012103

What is the value of $h$ ?
(1) $h^{2}=36$
(2) $h^{2}+12 h=-36$
196. 19155-!-item-!-187;\#058\&012165

How many odd integers are greater than the integer $x$ and less than the integer $y$ ?
(1) There are 12 even integers greater than $x$ and less than $y$.
(2) There are 24 integers greater than $x$ and less than $y$.
197. 19209-!-item-!-187;\#058\&012193

Jason's salary and Karen's salary were each p percent greater in 1998 than in 1995. What is the value of $p$ ?
(1) In 1995 Karen's salary was \$2,000 greater than Jason's.
(2) In 1998 Karen's salary was \$2,440 greater than Jason's.
198. 19263-!-item-!-187;\#058\&012213

Did one of the 3 members of a certain team sell at least 2 raffle tickets yesterday?
(1) The 3 members sold a total of 6 raffle tickets yesterday.
(2) No 2 of the members sold the same number of raffle tickets yesterday.
199. 19366-!-item-!-187;\#058\&012225

If $s$ and $t$ are two different numbers on the number line, is $s+t$ equal to 0 ?
(1) The distance between s and 0 is the same as the distance between t and 0 .
(2) 0 is between $s$ and $t$.
200. 19420-!-item-!-187;\#058\&012241

Of the 1,000 companies responding to a certain survey, what percent indicated that they had a business recovery plan?
(1) 200 of the companies did not indicate that they had a business recovery plan.
(2) The number of companies that indicated that they had a business recovery plan was 4 times the number that did not indicate that they had a business recovery plan.
201. 19474-!-item-!-187; \#058\&012274

Martha bought an armchair and a coffee table at an auction and sold both items at her store. Her gross profit from the purchase and sale of the armchair was what percent greater than her gross profit from the purchase and sale of the coffee table?
(1) Martha paid 10 percent more for the armchair than for the coffee table.
(2) Martha sold the armchair for 20 percent more than she sold the coffeetable.
202. 19528-!-item-!-187; \#058\&012279

Each employee of Company $Z$ is an employee of either Division $X$ or Division $Y$, but not both. If each division has some part-time employees, is the ratio of the number of full-time employees to the number of part-time employees greater for Division X than for Company Z ?
(1) The ratio of the number of full-time employees to the number of part-time employees is less for Division $Y$ than for Company $Z$.
(2) More than half of the full-time employees of Company $Z$ are employees of Division $X$, and more than half of the part-time employees of Company Z are employees of Division Y .
203. 19582-!-item-!-187;\#058\&012370

What is the remainder when the positive integer $x$ is divided by 6 ?
(1) When x is divided by 2 , the remainder is 1 ; and when x is divided by 3 , the remainder is 0 .
(2) When $x$ is divided by 12 , the remainder is 3 .
204. 19682-!-item-!-187;\#058\&012407

On a certain sight-seeing tour, the ratio of the number of women to the number of children was 5 to 2 . What was the number of men on the sight-seeing tour?
(1) On the sight-seeing tour, the ratio of the number of children to the number of men was 5 to 11 .
(2) The number of women on the sight-seeing tour was less than 30 .

## 205. 19736-!-item-!-187;\#058\&012415

Ellen can purchase a certain computer at a local store at the price of $p$ dollars and pay a 6 percent sales tax. Alternatively, Ellen can purchase the same computer from a catalog for a total of $q$ dollars, including all taxes and shipping costs. Will it cost more for Ellen to purchase the computer from the local store than from the catalog?
(1) $q-p<50$
(2) $q=1,150$

## 206. 19977-!-item-!-187; \#058\&012599

If $p$ is a positive integer, what is the value of $p$ ?
(1) $\frac{p}{4}$ is a prime number.
(2) p is divisible by 3 .
207. 20123-!-item-!-187;\#058\&012633

Is $\mathrm{y}<2 \mathrm{x}$ ?
(1) $\frac{y}{4}<\frac{x}{2}$
(2) $\frac{y-2 x}{3}<0$
208. 20177-!-item-!-187;\#058\&012683

Is $x>y$ ?
(1) $x+y<0$
(2) $x-y>0$
209. 20231-!-item-!-187;\#058\&012732

For each month of next year, Company R's monthly revenue target is $x$ dollars greater than its monthly revenue target for the preceding month. What is Company R's revenue target for March of next year?
(1) Company R's revenue target for December of next year is $\$ 310,000$.
(2) Company R's revenue target for September of next year is $\$ 30,000$ greater than its revenue target for June of next year.
210. 20285-!-item-!-187;\#058\&012741

Is $m+z>0$ ?
(1) $m-3 z>0$
(2) $4 z-m>0$
211. 20437-!-item-!-187;\#058\&012817

If $k$ is a positive integer, then 20 k is divisible by how many different positive integers?
(1) $k$ is prime.
(2) $k=7$
212. 20491-!-item-!-187;\#058\&012823

This morning, a certain sugar container was full. Since then some of the sugar from this container was used to make cookies. If no other sugar was removed from or added to the container, by what percent did the amount of sugar in the container decrease?
(1) The amount of sugar in the container after making the cookies would need to be increased by 30 percent to fill the container.
(2) Six cups of sugar from the container were used to make the cookies.
213. 20735-!-item-!-187;\#058\&013187

If $a$ and $b$ are positive numbers, what are the coordinates of the midpoint of line segment $C D$ in the $x y$-plane?
(1) The coordinates of $C$ are (a, 1-b).
(2) The coordinates of $D$ are $(1-a, b)$.
214. 20789-!-item-!-187;\#058\&013258

The cost of a square slab is proportional to its thickness and also proportional to the square of its length. What is the cost of a square slab that is 3 meters long and 0.1 meter thick?
(1) The cost of a square slab that is 2 meters long and 0.2 meter thick is $\$ 160$ more than the cost of a square slab that is 2 meters long and 0.1 meter thick.
(2) The cost of a square slab that is 3 meters long and 0.1 meter thick is $\$ 200$ more than the cost of a square slab that is 2
meters long and 0.1 meter thick.
215. 20843-!-item-!-187;\#058\&013306

If Bob produces 36 or fewer items in a week, he is paid $x$ dollars per item. If Bob produces more than 36 items in a week, he is paid $x$ dollars per item for the first 36 items and 1.5 times that amount for each additional item. How many items did Bob produce last week?
(1) Last week Bob was paid a total of $\$ 480$ for the items that he produced that week.
(2) This week Bob produced 2 items more than last week and was paid a total of $\$ 510$ for the items that he produced this week.
216. 20897-!-item-!-187;\#058\&013307

Is $x<y$ ?
(1) $2 x<3 y$
(2) $x y>0$

## 217. 21093-!-item-!-187;\#058\&013542

$$
a_{1}, a_{2}, a_{3}, \ldots, a_{15}
$$

In the sequence shown, $a_{n}=a_{n-1}+k$, where $2 \leq n \leq 15$ and $k$ is a nonzero constant. How many of the terms in the sequence are greater than 10 ?
(1) $a_{1}=24$
(2) $a_{8}=10$
218. 21147-!-item-!-187;\#058\&013552

Is $4 z>-6$ ?
(1) $z<7$
(2) $z>-1$

## Practice Test 1 Data Sufficiency Keys:

1. C 2. D 3. B 4. D 5. E 6. E 7. C 8. B 9. A 10. C 11. D 12. E 13. B 14. E 15. D 16. C 17. E 18. E 19. B 20. B 21. E 22. B 23. B 24. A 25. B 26. D 27. E 28. E 29. D 30. E 31. C 32. E 33. B 34. A 35. E 36. D 37. C 38. A 39. C 40. E 41. E 42. C 43. E 44. C 45. E 46. C 47. B 48. C 49. C 50. C 51. E 52. C 53. A 54. B 55. C 56. A 57. C 58. D 59. C 60. B 61. C 62. A 63. B 64. B 65. A 66. D 67. E 68. B 69. A 70. C 71. A 72. E 73. D 74. B 75. E 76. B 77. B 78. C 79. C 80. A 81. В 82. A 83. D 84. D 85. В 86. Е 87. С 88. С 89. В 90. D 91. В 92. А 93. В 94. С 95. А 96. А 97. В 98. В 99. С100. A 101. B 102. B 103. C 104. A 105. C 106. E 107. D 108. B 109. A 110. C 111. E 112. C 113. A 114. A 115. A 116. D 117. E 118. C 119. D 120. E 121. B 122. B 123. B 124. D 125. D 126. E 127. A 128. E 129. A 130. C 131. D 132. C 133. B 134. C 135. C 136. A 137. D 138. C 139. E 140. D 141. E 142. D 143. D 144. A 145. C 146. B 147. C 148. C 149. B 150. C 151. D 152. C 153. C 154. D 155. D 156. D 157. A 158. E 159. C 160. E 161. D 162. C 163. E 164. E 165. A 166. D 167. A 168. E 169. B 170. B 171. B 172. C 173. D 174. E 175. A 176. D 177. C 178. B 179. C 180. C 181. C 182. B 183. D 184. A 185. B 186. A 187. A 188. D189. A 190. C 191. E 192. B 193. C 194. D 195. B 196. B 197. C 198. D 199. A 200. D 201. E 202. D 203. D 204. C 205. C 206. C 207. D 208. B 209. C 210. C 211. B 212. A 213. C 214. D 215. E 216. E 217. B 218. B

# Practice Test \#2 Data Sufficiency <br> (218 Questions) 

1. 

Is $m>k$ ?
(1) $3 \mathrm{~m}>3 \mathrm{k}$
(2) $2 m>2 k$
2.

If $k$ is a positive integer, is $k$ the square of an integer?
(1) $k$ is divisible by 4 .
(2) $k$ is divisible by exactly four different prime numbers.
3.

If $w$ and $z$ are positive, is $\frac{w}{z}<1$ ?
(1) $w<z$
(2) $z<4$
4.

The sale price of a certain jacket was 15 percent less than its original price, and the sale price of a certain shirt was 10 percent less than its original price. How much greater was the original price of the jacket than the original price of the shirt?
(1) The sale price of the jacket was $\$ 83$ greater than the sale price of the shirt.
(2) The original price of the jacket was $\$ 140$.
5.

If $x, y$, and $z$ are integers, is $x+y+2 z$ even?
(1) $x+z$ is even.
(2) $y+z$ is even.
6.

The operation @ represents either addition, subtraction, or multiplication of integers. What is the value of 1 @ 0 ?
(1) 0 @ $2=2$
(2) $2 @ 0=2$

## 7.

One kilogram of a certain coffee blend consists of $x$ kilogram of type I coffee and $y$ kilogram of type II coffee. The cost of the blend is $C$ dollars per kilogram, where $C=6.5 x+8.5 y$. Is $x<0.8$ ?
(1) $y>0.15$
(2) $C \geq 7.30$
8.

If n and p are integers, is $\mathrm{p}>0$ ?
(1) $n+1>0$
(2) $\mathrm{np}>0$
9.

Each of the 105 students in a certain club is either a freshman, a sophomore, or a junior. How many of the students in the club are sophomores?
(1) The ratio of the number of freshmen to the number of sophomores is 1 to 2 .
(2) The ratio of the number of freshmen to the number of juniors is 1 to 4.
10.

Juan bought some paperback books that cost $\$ 8$ each and some hardcover books that cost $\$ 25$ each. If Juan bought more than 10 paperback books, how many hardcover books did he buy?
(1) The total cost of the hardcover books that Juan bought was at least $\$ 150$.
(2) The total cost of all the books that Juan bought was less than $\$ 260$.
11. 726-!-item-!-187;\#058\&000339

What is the value of the positive integer m ?
(1) When $m$ is divided by 6 , the remainder is 3 .
(2) When 15 is divided by $m$, the remainder is 6 .
12. 781-!-item-!-187;\#058\&000341

Sets $A, B$, and $C$ have some elements in common. If 16 elements are in both $A$ and $B, 17$ elements are in both $A$ and $C$, and 18 elements are in both $B$ and $C$, how many elements do all three of the sets $A, B$, and $C$ have in common?
(1) Of the 16 elements that are in both $A$ and $B, 9$ elements are also in $C$.
(2) A has 25 elements, B has 30 elements, and $C$ has 35 elements.
13. 881-!-item-!-187;\#058\&000429

Of the people who attended a workshop, 60 percent were teachers and some of the teachers were teachers of language arts. What percent of the people who attended the workshop were teachers of language arts?
(1) 200 people attended the workshop.
(2) 72 of the teachers who attended the workshop were not teachers of language arts.
14. 935-!-item-!-187;\#058\&000511

Jane walked for 4 miles. What was her average speed for the first 2 miles?
(1) Jane's average speed for the 4 miles was 3.2 miles per hour.
(2) It took Jane 15 minutes longer to walk the second 2 miles than it took her to walk the first 2 miles.
15. 989-!-item-!-187;\#058\&000579

Is $x y+x z=0$ ?
(1) $x=0$
(2) $y+z=0$
16. 1043-!-item-!-187;\#058\&000590

Is $|k|=2$ ?
(1) $k^{2}=4$
(2) $k=-2$
17. 1097-!-item-!-187;\#058\&000661

Store S sold a total of 90 copies of a certain book during the seven days of last week, and it sold different numbers of copies on any two of the days. If for the seven days Store $S$ sold the greatest number of copies on Saturday and the second greatest number of copies on Friday, did Store S sell more than 11 copies on Friday?
(1) Last week Store $S$ sold 8 copies of the book on Thursday.
(2) Last week Store S sold 38 copies of the book on Saturday.
18. 1151-!-item-!-187;\#058\&000679

Are the two nonzero integers $x$ and $y$ on opposite sides of 0 on the number line?
(1) The sum of $x$ and $y$ is 0 .
(2) The product of $x$ and $y$ is less than 0 .
19. 1251-!-item-!-187;\#058\&000852

Set $S$ consists of five consecutive integers, and set $T$ consists of seven consecutive integers. Is the median of the numbers in set $S$ equal to the median of the numbers in set $T$ ?
(1) The median of the numbers in set S is 0 .
(2) The sum of the numbers in set S is equal to the sum of the numbers in set T .
20. 1305-!-item-!-187;\#058\&000855

If $-2 x>3 y$, is $x$ negative?
(1) $y>0$
(2) $2 x+5 y-20=0$
21. 1407-!-item-!-187;\#058\&000929

Is the integer n odd?
(1) $n$ is divisible by 3 .
(2) $2 n$ is divisible by twice as many positive integers as $n$.
22. 1557-!-item-!-187;\#058\&001222

Is $\mathcal{L}_{p}>\frac{r}{r^{2}+2}$
(1) $p=r$
(2) $r>0$

## 23. 1765-!-item-!-187;\#058\&002433

| $\boldsymbol{q}$ | $\boldsymbol{q}$ | $\boldsymbol{q}$ | $\boldsymbol{q}$ |
| :---: | :---: | :---: | :---: |
| $\boldsymbol{q}$ | $\boldsymbol{r}$ | $\boldsymbol{s}$ | $\boldsymbol{t}$ |
| $\boldsymbol{q}$ | $\boldsymbol{u}$ | $\boldsymbol{v}$ | $\boldsymbol{w}$ |
| $\boldsymbol{q}$ | $\boldsymbol{x}$ | $\boldsymbol{V}$ | $\boldsymbol{z}$ |

In the table above, is $z=20 q$ ?
(1) $q=3$
(2) Each value in the table other than $q$ is equal to the sum of the value immediately above it in the table and the value immediately to its left in the table.

## 24. 1819-!-item-!-187;\#058\&002455

One member of a committee of 5 men and 8 women resigned and was not replaced. What fraction of the remaining members were men?
(1) $\frac{7}{12}$ of the remaining members werewomen.
(2) The member who resigned was a woman.
25. 1873-!-item-!-187; \#058\&002459

If $x$ and $y$ are greater than 0 , is $x=1$ ?
(1) $\frac{x}{y}=1$
(2) $x y=1$
26. 1925-!-item-!-187;\#058\&002479

If $x$ and $y$ are integers, is the value of $x(y+1)$ even?
(1) $x$ and $y$ are prime numbers.
(2) $y>7$
27. 2023-!-item-!-187;\#058\&002572

Does set $S$ contain any even numbers?
(1) There are no prime numbers in S .
(2) There are no multiples of 4 in S .
28. 2077-!-item-!-187;\#058\&002573

A certain movie depicted product A in 21 scenes, product $B$ in 7 scenes, product $C$ in 4 scenes, and product $D$ in 3 scenes. The four product manufacturers paid amounts proportional to the number of scenes in which their product was depicted in the movie. If each manufacturer paid $x$ dollars per scene, how much did the manufacturer of product $D$ pay for this advertising?
(1) The manufacturers of products $A$ and $B$ together paid a total of $\$ 560,000$ for this advertising.
(2) The manufacturer of product $B$ paid $\$ 60,000$ more for this advertising than the manufacturer of product $C$ paid.
29. 2131-!-item-!-187;\#058\&002580

Is the positive integer n odd?
(1) $n=2 k+1$, where $k$ is a positive integer.
(2) $2 n+1$ is an odd integer.

## 30. 2186-!-item-!-187; \#058\&002582

If n is an integer, is $\frac{n}{7}$ an integer?
(1) $\frac{3 n}{7}$ is an integer.
(2) $\frac{5 n}{7}$ is an integer.
31. 2292-!-item-!-187;\#058\&002682

If a wire 27 meters long is cut into three pieces of three different lengths, what is the length of the longest piece?
(1) The length of the longest piece is twice the length of the shortest piece.
(2) The sum of the lengths of the two shorter pieces is 15 meters.

## 32. 2346-!-item-!-187;\#058\&002760

Is positive integer n divisible by 3 ?
(1) $\underline{\beta}_{6}^{2}$ is an integer.
(2) $\frac{144}{n^{2}}$ is an integer.
33. 2446-!-item-!-187; \#058\&002780

If $a>0, b>0$, and $c>0$, is $a(b-c)=0$ ?
(1) $\mathrm{b}-\mathrm{c}=\mathrm{c}-\mathrm{b}$
(2) $\frac{b}{c}=\frac{c}{b}$
34. 2500-!-item-!-187;\#058\&002904

Are positive integers $p$ and $q$ both greater than $n$ ?
(1) $p-q$ is greater than $n$.
(2) $q>p$
35. 2600-!-item-!-187; \#058\&002931

What is the value of $x y$ ?
(1) $y=x+1$
(2) $y=x^{2}+1$
36. 2847-!-item-!-187;\#058\&003085

If $a x+b=0$, is $x>0$ ?
(1) $a+b>0$
(2) $a-b>0$
37. 3042-!-item-!-187; \#058\&003156

Are the integers $z$ and $f$ to the right of 0 on the number line?
(1) The product of $z$ and $f$ is positive.
(2) The sum of $z$ and $f$ is positive.
38. 3096-!-item-!-187;\#058\&003188

Some of the students enrolled at College T are part-time students and the rest are full-time students. By what percent did the number of full-time students enrolled at College T increase from the fall of 1999 to the fall of 2000 ?
(1) There were 50 more full-time students enrolled at College $T$ in the fall of 2000 than in the fall of 1999.
(2) The total number of students enrolled at College T increased by 5 percent from the fall of 1999 to the fall of 2000.
39. 3150-!-item-!-187;\#058\&003215

If $c$ and $d$ are integers, is ceven?
(1) $c(d+1)$ is even.
(2) $(c+2)(d+4)$ is even.
40. 3204-!-item-!-187; \#058\&003218

If set $S$ consists of the numbers $1,5,-2,8$, and $n$, is $0<n<7$ ?
(1) The median of the numbers in S is less than 5 .
(2) The median of the numbers in S is greater than 1.
41. 3308-!-item-!-187;\#058\&003278

Last Thursday, John assembled chairs at a rate of 3 chairs per hour for part of the day and Larry assembled no chairs. Last Friday, Larry assembled chairs at a rate of 4 chairs per hour for part of the day and John assembled no chairs. If John and Larry assembled chairs for a total of 7 hours during these two days, how many chairs did John assemble last Thursday?
(1) During these two days, John and Larry assembled a total of 25 chairs.
(2) During these two days, Larry assembled more chairs than John did.
42. 3362-!-item-!-187; \#058\&003280

What is the value of $3 n-4$ ?
(1) $6 n-10=30$
(2) $\frac{n}{3}=\frac{20}{9}$

## 43. 3416-!-item-!-187; \#058\&003281

Circle $C$ and line $k$ lie in the $x y$-plane. If circle $C$ is centered at the origin and has radius 1 , does line $k$ intersect circle $C$ ?
(1) The x -intercept of line k is greater than 1.
(2) The slope of line $k$ is $-\frac{1}{10}$.
44. 3524-!-item-!-187;\#058\&003319

How many people received a certain survey?
(1) Six-tenths of those who received the survey responded.
(2) Of those who received the survey, 42 responded.
45. 3824-!-item-!-187;\#058\&003586

If $x$ and $z$ are integers, is at least one of them even?
(1) $x+z$ is odd.
(2) $x-z$ is odd.
46. 3927-!-item-!-187;\#058\&003647

Three thousand families live in a certain town. How many families who live in the town own neither a car nor a television set?
(1) Of the families who live in the town, 2,980 own a car.
(2) Of the families who live in the town, 2,970 own both a car and a television set.
47. 3982-!-item-!-187; \#058\&003679

In the fraction $\frac{x}{y}$, where x and y are positive integers, what is the value of y ?
(1) The least common denominator of $\frac{x}{y}$ and $\frac{1}{3}$ is 6 .
(2) $x=1$.
48. 4036-!-item-!-187;\#058\&003710

There are two types of rolls on a counter, plain rolls and seeded rolls. What is the total number of rolls on the counter?
(1) The ratio of the number of seeded rolls on the counter to the number of plain rolls on the counter is 1 to 5 .
(2) There are 16 more plain rolls than seeded rolls on the counter.

## 49. 4090-!-item-!-187; \#058\&003782

Is the hundredths digit of the decimal d greater than 5 ?
(1) The tenths digit of 10 d is 7 .
(2) The thousandths digit of $\frac{d}{10}$ is 7 .
50. 4144-!-item-!-187;\#058\&003797

What is the value of $2 x+2 y$ ?
(1) $3 x+5 y=60$
(2) $5 x+3 y=68$
51. 4198-!-item-!-187;\#058\&003817

Whenever Martin has a restaurant bill with an amount between $\$ 10$ and $\$ 99$, he calculates the dollar amount of the tip as 2 times the tens digit of the amount of his bill. If the amount of Martin's most recent restaurant bill was between $\$ 10$ and $\$ 99$, was the tip calculated by Martin on this bill greater than 15 percent of the amount of the bill?
(1) The amount of the bill was between $\$ 15$ and $\$ 50$.
(2) The tip calculated by Martin was $\$ 8$.
52. 4349-!-item-!-187; \#058\&003856

For Manufacturer $M$, the cost $C$ of producing $x$ units of its product per month is given by $C=k x+t$, where $C$ is in dollars and $k$ and $t$ are constants. Last month, if Manufacturer $M$ produced 1,000 units of its product and sold all the units for $k+60$ dollars each, what was Manufacturer M's gross profit on the 1,000 units?
(1) Last month, Manufacturer M's revenue from the sale of the 1,000 units was $\$ 150,000$.
(2) Manufacturer M's cost of producing 500 units in a month is $\$ 45,000$ less than its cost of producing 1,000 units in a month.
53. 4404-!-item-!-187;\#058\&003880

The symbol @ represents one of the four arithmetic operations: addition, subtraction, multiplication, and division.
Is $(5$ @ 6$) @ 2=5 @(6 @ 2) ?$
(1) 5 @ $6=6$ @ 5
(2) $2 @ 0=2$
54. 4458-!-item-!-187;\#058\&003882

If $y$ is an integer and $y=|x|+x$, is $y=0$ ?
(1) $x<0$
(2) $y<1$
55. 4604-!-item-!-187;\#058\&003931

Is the positive integer n an odd integer?
(1) $n+4$ is a prime number.
(2) $n+3$ is not a prime number.
56. 4658-!-item-!-187;\#058\&003940

What is the total surface area of rectangular solid R ?
(1) The surface area of one of the faces of $R$ is 48.
(2) The length of one of the edges of $R$ is 3 .
57. 4761-!-item-!-187;\#058\&003968

A certain list consists of several different integers. Is the product of all the integers in the list positive?
(1) The product of the greatest and smallest of the integers in the list is positive.
(2) There is an even number of integers in the list.
58. 4863-!-item-!-187;\#058\&004007

A certain store sells chairs individually or in sets of 6 . The store charges less for purchasing a set of 6 chairs than for purchasing 6 chairs individually. How much does the store charge for purchasing a set of 6 chairs?
(1) The charge for purchasing a set of 6 chairs is 10 percent less than the charge for purchasing the 6 chairsindividually.
(2) The charge for purchasing a set of 6 chairs is $\$ 20$ more than the charge for purchasing 5 chairsindividually.
59. 4918-!-item-!-187; \#058\&004054

If $\mathrm{k} \neq 0,1$, or -1 , is $\quad \frac{1}{k}>0$ ?
(1) $\frac{1}{k-1}>0$
(2) $\frac{1}{k+1}>0$
60. 4972-!-item-!-187;\#058\&004074

Does the integer $k$ have a factor $p$ such that $1<p<k$ ?
(1) $k>4$ !
(2) $13!+2 \leq k \leq 13!+13$
61. 5072-!-item-!-187;\#058\&004127

When the positive integer $n$ is divided by 25 , the remainder is 13 . What is the value of $n$ ?
(1) $n<100$
(2) When $n$ is divided by 20 , the remainder is 3 .
62. 5126-!-item-!-187; \#058\&004141

If $y \geq 0$, what is the value of $x$ ?
(1) $|x-3| \geq y$
(2) $|x-3| \leq-y$
63. 5228-!-item-!-187;\#058\&004178

If $m$ is a positive odd integer, what is the average (arithmetic mean) of a certain set of $m$ integers?
(1) The integers in the set are consecutive multiples of 3.
(2) The median of the set of integers is 33 .
64. 5329-!-item-!-187;\#058\&004211

If $a<y<z<b$, is $|y-a|<|y-b| ?$
(1) $|z-a|<|z-b|$
(2) $|y-a|<|z-b|$
65. 5432-!-item-!-187;\#058\&004252

If $a b \neq 0$ and points $(-a, b)$ and $(-b, a)$ are in the same quadrant of the $x y$-plane, is point $(-x, y)$ in this same quadrant?
(1) $x y>0$
(2) $a x>0$
66. 5486-!-item-!-187;\#058\&004317

If q is a positive integer less than 17 and $r$ is the remainder when 17 is divided by q , what is the value of r ?
(1) $q>10$
(2) $q=2^{k}$, where $k$ is a positive integer.

## 67. 5586-!-item-!-187;\#058\&004324

What is the ratio of the number of cups of flour to the number of cups of sugar required in a certain cake recipe?
(1) The number of cups of flour required in the recipe is 250 percent of the number of cups of sugar required in the recipe.
(2) $1_{-2}^{1}$ more cups of flour than cups of sugar are required in the recipe.

## 68. 5640-!-item-!-187; \#058\&004354

In 1999 Company X's gross profit was what percent of its revenue?
(1) In 1999 Company X's gross profit was $\frac{1}{3}$ of its expenses.
(2) In 1999 Company X's expenses were $\frac{3}{4}$ of its revenue.
69. 5791-!-item-!-187;\#058\&004570

At the bakery, Lew spent a total of $\$ 6.00$ for one kind of cupcake and one kind of doughnut. How many doughnuts did he buy?
(1) The price of 2 doughnuts was $\$ 0.10$ less than the price of 3 cupcakes.
(2) The average (arithmetic mean) price of 1 doughnut and 1 cupcake was $\$ 0.35$.
70. 6564-!-item-!-187;\#058\&004850

If eleven consecutive integers are listed from least to greatest, what is the average (arithmetic mean) of the eleven integers?
(1) The average of the first nine integers is 7 .
(2) The average of the last nine integers is 9 .
71. 6765-!-item-!-187; \#058\&004947

What is the greatest integer that is less than $t$ ?
(1) $t=9_{4}$
(2) $t=\left(\frac{-3}{2}\right)^{2}$

## 72. 6868-!-item-!-187; \#058\&005029

Of the 4,800 voters who voted for or against Resolution K, 1800 were Democrats and 3,000 were Republicans. What was the total number of female voters who voted for Resolution K ?
(1) $\frac{3}{4}$ of the Democrats and $\frac{2}{3}$ of the Republicans voted for Resolution K.
(2) $\frac{1}{3}$ of the Democrats who voted for Resolution K and $\frac{1}{2}$ of the Republicans who voted for Resolution K were females.

## 73. 6922-!-item-!-187; \#058\&005032

If n is a positive integer, is $\mathrm{n}^{3}-\mathrm{n}$ divisible by 4 ?
(1) $n=2 k+1$, where $k$ is an integer.
(2) $\mathrm{n}^{2}+\mathrm{n}$ is divisible by 6 .
74. 6977-!-item-!-187; \#058\&005035

If $\mathrm{x} \neq-\mathrm{y}$, is $\quad \frac{x-y}{x+y}>1$ ?
(1) $x>0$
(2) $y<0$
75. 7031-!-item-!-187;\#058\&005040

A certain group of car dealerships agreed to donate $x$ dollars to a Red Cross chapter for each car sold during a 30-day period. What was the total amount that was expected to be donated?
(1) A total of 500 cars were expected to be sold.
(2) 60 more cars were sold than expected, so that the total amount actually donated was $\$ 28,000$.
76. 7085-!-item-!-187;\#058\&005061

Over a certain time period, did the number of shares of stock in Ruth's portfolio increase?
(1) Over the time period, the ratio of the number of shares of stock to the total number of shares of stocks and bonds in Ruth's portfolio increased.
(2) Over the time period, the total number of shares of stocks and bonds in Ruth's portfolio increased.
77. 7139-!-item-!-187;\#058\&005072

Is $|x|=y-z$ ?
(1) $x+y=z$
(2) $x<0$

## 78. 7339-!-item-!-187;\#058\&005310

If $n$ is an integer, is $-3 x^{n}$ positive?
(1) $x$ is negative.
(2) $n$ is odd.
79. 7535-!-item-!-187; \#058\&005487

If n is an integer between 2 and 100 and if n is also the square of an integer, what is the value of n ?
(1) $n$ is even.
(2) The cube root of $n$ is an integer.
80. 7589-!-item-!-187;\#058\&005492

If $x$ and $y$ are positive integers such that $x=8 y+12$, what is the greatest common divisor of $x$ and $y$ ?
(1) $x=12 u$, where $u$ is an integer.
(2) $y=12 z$, where $z$ is an integer.
81. 7692-!-item-!-187;\#058\&005524

At a certain bakery, each roll costs $r$ cents and each doughnut costs $d$ cents. If Alfredo bought rolls and doughnuts at the bakery, how many cents did he pay for each roll?
(1) Alfredo paid $\$ 5.00$ for 8 rolls and 6 doughnuts.
(2) Alfredo would have paid $\$ 10.00$ if he had bought 16 rolls and 12 doughnuts.
82. 7746-!-item-!-187;\#058\&005794

Is $x>0$ ?
(1) $x y>0$
(2) $x+y>0$
83. 7800-!-item-!-187; \#058\&005796

How much time did it take a certain car to travel 400 kilometers?
(1) The car traveled the first 200 kilometers in 2.5 hours.
(2) If the car's average speed had been 20 kilometers per hour greater than it was, it would have traveled the 400 kilometers in 1 hour less time than it did.
84. 7854-!-item-!-187; \#058\&005813

Each of the offices in a certain building has a floor area of 200, 300, or 350 square feet. How many offices are on the first floor of the building?
(1) There is a total of 9,500 square feet of office floor space on the first floor of the building.
(2) Ten of the offices on the first floor have floor areas of 350 square feet each.
85. 7908-!-item-!-187; \#058\&005852

Is n divisible by 12 ?
(1) $\frac{n}{6}$ is an integer.
(2) $\frac{n}{4}$ is an integer.
86. 7962-!-item-!-187;\#058\&005867

Do more than 50 percent of the children in a certain group have brown hair?
(1) 70 percent of the boys in the group have brown hair.
(2) 30 percent of the children in the group are girls with brown hair.
87. 8062-!-item-!-187;\#058\&006016

Is the integer n a multiple of 15 ?
(1) $n$ is a multiple of 20 .
(2) $n+6$ is a multiple of 3 .

## 88. 8117-!-item-!-187; \#058\&006040

If $\mathrm{x}+\mathrm{y} \neq 0$, what is the value of $\frac{a x+a y}{x+y}$ ?
(1) $x=4$ and $y=5$.
(2) $a=6$
89. 8171-!-item-!-187;\#058\&006095

What is the ratio of $p$ to $r$ ?
(1) The ratio of $p$ to $3 r$ is 5 to 9 .
(2) The sum of $p$ and $r$ is 16 .
90. 8271-!-item-!-187; \#058\&006138

What is the value of $a^{4}-b^{4}$ ?
(1) $a^{2}-b^{2}=16$
(2) $a+b=8$
91. 8325-!-item-!-187;\#058\&006143

In the rectangular coordinate system, are the points $(r, s)$ and ( $u, v$ ) equidistant from the origin?
(1) $r+s=1$
(2) $u=1-r$ and $v=1-s$.
92. 8570-!-item-!-187;\#058\&006483
$X$ and $Y$ are sets of positive integers. Is the greatest integer in $X$ greater than the greatest integer in $Y$ ?
(1) $X$ is a set of 5 consecutive odd integers, each less than 20 .
(2) Y is a set of 3 consecutive even integers, each less than 15.
93. 8624-!-item-!-187;\#058\&006485

The lifetimes of all the batteries produced by a certain company in a year have a distribution that is symmetric about the mean $m$. If the distribution has a standard deviation of $d$, what percent of the distribution is greater than $m+d$ ?
(1) 68 percent of the distribution lies in the interval from $m-d$ to $m+d$, inclusive.
(2) 16 percent of the distribution is less than $m-d$.

## 94. 8775-!-item-!-187;\#058\&006653

If $|x+2|=4$, what is the value of $x$ ?
(1) $x^{2} \neq 4$
(2) $x^{2}=36$
95. 8829-!-item-!-187; \#058\&006700

If $v$ and $w$ are different integers, does $v=0$ ?
(1) $v w=v^{2}$
(2) $w=2$
96. 8932-!-item-!-187;\#058\&006783

Is $\overline{(x-5)^{2}}=5-x$
(1) $-x|x|>0$
(2) $5-x>0$
97. 8986-!-item-!-187;\#058\&006790

What is the median of a certain set of 7 numbers?
(1) 3 of the numbers are less than 10 .
(2) 4 of the numbers are greater than 10.
98. 9040-!-item-!-187;\#058\&006792

Is $\mathrm{x}+\mathrm{y}<1$ ?
(1) $x<\frac{8}{9}$
(2) $y<\frac{1}{8}$
99. 9094-!-item-!-187; \#058\&006821

For each home sold in County $X$, the buyer and the seller each must pay to County $X$ a tax of 0.5 percent of the sale price of the home. Colleen recently sold her old home and bought a new home, both in County $X$. What was the total tax that Colleen paid to County X on these home sales?
(1) Colleen's old home had a sale price of $\$ 169,500$.
(2) Colleen's new home had a sale price $20 \%$ greater than that of her old home.
100. 9148-!-item-!-187;\#058\&006857

A certain bank charges a maintenance fee on a standard checking account each month that the balance falls below $\$ 1,000$ at any time during the month. Did the bank charge a maintenance fee on Sue's standard checking account last month?
(1) At the beginning of last month, Sue's account balance was $\$ 1,500$.
(2) During last month, a total of $\$ 2,000$ was withdrawn from Sue's checking account.
101. 9205-!-item-!-187;\#058\&006882


In the figure above, lines $I_{1}$ and $I_{2}$ are parallel. What is the value of $x$ ?
(1) $y=87$
(2) $z=93$
102. 9262-!-item-!-187;\#058\&006890


In the coordinate plane above, what is the area of rectangular region MNRS ?
(1) $M$ has coordinates $(2,1)$.
(2) $N$ has coordinates $(2,5)$.
103. 9889-!-item-!-187;\#058\&007222

How much did the taxi driver charge George for the trip to the airport?
(1) George paid the taxi driver a tip equal to 15 percent of the amount the driver charged.
(2) George paid the taxi driver a tip of $\$ 6.00$.
104. 9943-!-item-!-187;\#058\&007224

A child selected a three-digit number, $X Y Z$, where $X, Y$, and $Z$ denote the digits of the number. If no two of the three digits were equal, what was the three-digit number?
(1) The sum of the digits was 10.
(2) $X<Y<Z$

## 105. 9997-!-item-!-187; \#058\&007246

If $b$ is positive, is $a b$ positive?
(1) $a^{2} b>0$
(2) $a^{2}+b=13$
106. 10051-!-item-!-187;\#058\&007251

Robin split a total of $\$ 24,000$ between two investments, $X$ and $Y$. If investment $Y$ earns 7 percent simple annual interest, how much of the total did Robin put into investment $Y$ ?
(1) Each investment earns the same dollar amount of interest annually.
(2) Investment $X$ earns 5 percent simple annual interest.
107. 10578-!-item-!-187;\#058\&007600

Is $2 \mathrm{x}-3 \mathrm{y}<\mathrm{x}^{2}$ ?
(1) $2 x-3 y=-2$
(2) $x>2$ and $y>0$.
108. 10635-!-item-!-187;\#058\&007601

If ${ }_{2}^{x}=\frac{3}{y}$, is $_{y} \mathrm{x}$ less than y ?
(1) $y \geq 3$
(2) $y \leq 4$
109. 11067-!-item-!-187;\#058\&007824

Marta bought several pencils. If each pencil was either a 23-cent pencil or a 21-cent pencil, how many 23-cent pencils did Marta buy?
(1) Marta bought a total of 6 pencils.
(2) The total value of the pencils Marta bought was 130 cents.
110. 11121-!-item-!-187;\#058\&007826

If $x$ and $y$ are integers and $x>0$, is $y>0$ ?
(1) $7 x-2 y>0$
(2) $-y<x$

## 111. 11229-!-item-!-187;\#058\&007982

A state legislature had a total of 96 members. The members who did not vote on a certain bill consisted of 25 who were absent and 3 who abstained. How many of those voting voted for the bill?
(1) Exactly $\frac{1}{3}$ of the total membership of the legislature voted against the bill.
(2) The number of Legislators who voted for the bill was 8 more than the total number who were absent or abstained.
112. 11432-!-item-!-187;\#058\&008149

If $m$ and $n$ are positive integers and $m n=k$, is $m+n=k+1$ ?
(1) $m=1$
(2) $k$ is a prime number.
113. 11488-!-item-!-187;\#058\&008235

In a certain year the United Nations' total expenditures were $\$ 1.6$ billion. Of this amount, 67.8 percent was paid by the 6 highest-contributing countries, and the balance was paid by the remaining 153 countries. Was Country X among the 6 highest-contributing countries?
(1) 56 percent of the total expenditures was paid by the 4 highest-contributing countries, each of which paid more than Country X.
(2) Country X paid 4.8 percent of the total expenditures.
114. 11543-!-item-!-187;\#058\&008310

If $\frac{x+y}{z}=-2$, is x positive?
(1) $z$ is negative.
(2) $y$ is positive.
115. 11595-!-item-!-187;\#058\&008332

List $S$ and list T each contain 5 positive integers, and for each list the average (arithmetic mean) of the integers in the list is 40. If the integers 30,40 , and 50 are in both lists, is the standard deviation of the integers in list $S$ greater than the standard deviation of the integers in list T ?
(1) The integer 25 is in list S .
(2) The integer 45 is in list T .
116. 11649-!-item-!-187;\#058\&008377

On the number line, what is the distance between the point $2 x$ and the point $3 x$ ?
(1) On the number line, the distance between the point $-x$ and the point $x$ is 16 .
(2) On the number line, the distance between the point $x$ and the point $3 x$ is 16 .
117. 11703-!-item-!-187;\#058\&008423

What is the remainder when the positive integer n is divided by the positive integer k , where $\mathrm{k}>1$ ?
(1) $n=(k+1)^{\wedge} 3$
(2) $k=5$

## 118. 11804-!-item-!-187;\#058\&008456

Is $x \geq 3$ ?
(1) $x^{2}-9=0$
(2) $x<10$

## 119. 11954-!-item-!-187;\#058\&008495

At a two-candidate election for mayor, $\frac{3}{4}$ of the registered voters cast ballots. How many registered voters cast ballots for the winning candidate?
(1) 25,000 registered voters did not cast ballots in the election.
(2) Of the registered voters who cast ballots, 55 percent cast ballots for the winning candidate.
120. 12295-!-item-!-187;\#058\&008940

If $n$ is the product of the least and the greatest of 6 consecutive integers, what is the value of $n$ ?
(1) The greatest of the 6 consecutive integers is 20 .
(2) The average (arithmetic mean) of the 6 consecutive integers is 17.5 .
121. 12397-!-item-!-187;\#058\&009033

If n and s are each 2-digit positive integers, is n greater than s ?
(1) The units digit of n is greater than the units digit of s .
(2) The tens digit of $n$ is greater than the tens digit of $s$.
122. 12685-!-item-!-187;\#058\&009461

If $n$ is a positive integer and $r$ is the remainder when $(n-1)(n+1)$ is divided by 24 , what is the value of $r$ ?
(1) 2 is not a factor of $n$.
(2) 3 is not a factor of $n$.
123. 12975-!-item-!-187;\#058\&009772

When positive integer n is divided by 3 , the remainder is 2 ; and when positive integer t is divided by 5 , the remainder is 3 . What is the remainder when the product nt is divided by 15 ?
(1) $n-2$ is divisible by 5 .
(2) t is divisible by 3 .

## 124. 13029-!-item-!-187; \#058\&009789

A certain motel has a total of 540 units, each of which has a 1-person, 2-person, or 4-person capacity. How many people stayed in the motel's 4-person units yesterday?
(1) At this motel, $\frac{1}{3}$ of the units are 4-person units.
(2) Yesterday, 80 percent of the 4-person units in the motel were filled to capacity, and the rest of the 4-person units were empty.
125. 13274-!-item-!-187;\#058\&009989

If @ denotes one of two arithmetic operations, addition or multiplication, and if $k$ is an integer, what is the value of 3 @ $k$ ?
(1) $2 @ k=3$
(2) $1 @ 0=\mathrm{k}$
126. 13661-!-item-!-187;\#058\&010116

If $r$ and $t$ are positive integers, is rt even?
(1) $r+t$ is odd.
(2) $r^{t}$ is odd.
127. 13762-!-item-!-187;\#058\&010132

If ${ }^{2}$ 甲f the students at College $C$ are business majors, what is the number of female students at College $C$ ?
(1) $\frac{2}{5}$ of the male students at College $C$ are business majors.
(2) 200 of the female students at College C are business majors.
128. 13817-!-item-!-187;\#058\&010140

Is $\mathrm{y}<\frac{x+z}{2}$ ?
(1) $y-x<z-y$
(2) $z-y<\frac{z-x}{2}$

## 129. 13872-!-item-!-187; \#058\&010142

If $t$ is a positive integer and $r$ is the remainder when $t^{2}+5 t+6$ is divided by 7 , what is the value of $r$ ?
(1) When $t$ is divided by 7 , the remainder is 6 .
(2) When $t^{2}$ is divided by 7 , the remainder is 1 .
130. 14021-!-item-!-187;\#058\&010265

Set $S$ consists of 20 different positive integers. How many of the integers in $S$ are odd?
(1) 10 of the integers in S are even.
(2) 10 of the integers in S are multiples of 4 .
131. 14121-!-item-!-187;\#058\&010319

If $w+x<0$, is $w-y>0$ ?
(1) $x+y<0$
(2) $y<x<w$
132. 14175-!-item-!-187;\#058\&010326

If the drama club and music club are combined, what percent of the combined membership will be male?
(1) Of the 16 members of the drama club, 15 aremale.
(2) Of the 20 members of the music club, 10 are male.
133. 14229-!-item-!-187;\#058\&010329

What is the average (arithmetic mean) height of the $n$ people in a certain group?
(1) The average height of the ${ }_{-}^{n}$ tallest people $n$ the group is 6 feet $2_{-}{ }^{1}$ inches, and the average height of the rest of the people $n$ the group is $f$ feet 10 inches.
(2) The sum of the heights of the $n$ people is 178 feet 9 inches.
134. 14283-!-item-!-187;\#058\&010330

If $m$ and $n$ are integers, is $m$ odd?
(1) $n+m$ is odd.
(2) $n+m=n^{2}+5$.
135. 14337-!-item-!-187;\#058\&010335

How many more first-time jobless claims were filed in week $P$ than in week $T$ ?
(1) For weeks P, Q, R, and S, the average (arithmetic mean) number of first-time jobless claims filed was 388,250.
(2) For weeks Q, R, S, and T, the average (arithmetic mean) number of first-time jobless claims filed was 383,000.
136. 14393-!-item-!-187;\#058\&010357

$$
x, 3,1,12,8
$$

If $x$ is an integer, is the median of the 5 numbers shown greater than the average (arithmetic mean) of the 5 numbers?
(1) $x>6$
(2) $x$ is greater than the median of the 5 numbers.
137. 14447-!-item-!-187;\#058\&010361

If $x$ and $y$ are positive integers, is $x y$ a multiple of 8 ?
(1) The greatest common divisor of x and y is 10 .
(2) The least common multiple of $x$ and $y$ is 100 .
138. 14501-!-item-!-187;\#058\&010393

If $z y<x y<0$, is $|x-z|+|x|=|z|$ ?
(1) $z<x$
(2) $y>0$
139. 14556-!-item-!-187;\#058\&010396

If machine J, working alone at its constant rate, takes 2 minutes to wrap 60 pieces of candy, how many minutes does it take machine K, working alone at its constant rate, to wrap 120 pieces of candy?
(1) Machine K, working alone at its constant rate, takes more than 5 minutes to wrap 60 pieces of candy.
(2) Machines J and K, working together at their respective constant rates, take 1 minute and 30 seconds to wrap 60 pieces of candy.

## 140. 14610-!-item-!-187;\#058\&010398

A manufacturer produced x percent more video cameras in 1994 than in 1993 and y percent more video cameras in 1995 than in 1994. If the manufacturer produced 1,000 video cameras in 1993, how many video cameras did the manufacturer produce in 1995 ?
(1) $x y=20$
(2) $x+y+\frac{x y}{100}=9.2$
141. 14664-!-item-!-187;\#058\&010407

Of the 20 people who each purchased 2 tickets to a concert, some used both tickets, some used only 1 ticket, and some used neither ticket. What percent of the tickets that were purchased by the 20 people were used by those people?
(1) Of the 20 people, 10 used only 1 ticket.
(2) Of the 20 people, 4 used neither ticket.
142. 14718-!-item-!-187;\#058\&010409

At a certain stand, all soft drinks cost the same and all sandwiches cost the same. How much does 1 sandwich cost at the stand?
(1) At the stand, 1 sandwich and 2 soft drinks cost a total of $\$ 3.15$.
(2) At the stand, 3 sandwiches and 1 soft drink cost a total of $\$ 5.70$.
143. 14772-!-item-!-187;\#058\&010415

If $K$ is a positive three-digit integer, what is the hundreds digit of $K$ ?
(1) The hundreds digit of $K+150$ is 4 .
(2) The tens digit of $K+25$ is 7 .
144. 14826-!-item-!-187;\#058\&010416

In the xy-plane, point $P$ has coordinates $(a, b)$ and point $Q$ has coordinates ( $c, d$ ). What is the distance between $P$ and $Q$ ?
(1) $b-d=4$
(2) $a-c=3$
145. 14880-!-item-!-187;\#058\&010418

If $a, b$, and $c$ are positive integers, is $b$ between $a$ and $c$ ?
(1) $b$ is 3 greater than $a$, and $b$ is 5 less than $c$.
(2) $c$ is 5 greater than $b$, and $c$ is 8 greater than $a$.
146. 14980-!-item-!-187;\#058\&010478

At a certain refreshment stand, all hot dogs have the same price and all sodas have the same price. What is the total price of 3 hot dogs and 2 sodas at the refreshment stand?
(1) The total price of 5 sodas at the stand is less than the total price of 2 hot dogs.
(2) The total price of 9 hot dogs and 6 sodas at the stand is $\$ 21$.
147. 15034-!-item-!-187;\#058\&010480

If a certain company purchased computers at $\$ 2,000$ each and printers at $\$ 300$ each, how many computers did it purchase?
(1) More than three printers were purchased.
(2) The total amount for the purchase of the computers and the printers was $\$ 15,000$.
148. 15274-!-item-!-187;\#058\&010713

If $x=3$ and $y=6$, is $y>n x+k$ ?
(1) $n=5$
(2) $k=-10$
149. 15328-!-item-!-187;\#058\&010715

Does $x+c=y+c$ ?
(1) $x=y$
(2) $x=c$
150. 15382-!-item-!-187; \#058\&010719

If $n$ is an integer between 3 and 9 , what is the value of $n$ ?
(1) On the number line, the distance from 3 to n is $\frac{2}{3}$ of the distance from 3 to 9 .
(2) On the number line, n is 10 units to the right of -3
151. 15486-!-item-!-187;\#058\&010743

Is the average (arithmetic mean) of 5 different positive integers at least 30 ?
(1) Each of the integers is a multiple of 10 .
(2) The sum of the 5 integers is 160 .
152. 15540-!-item-!-187;\#058\&010751

A certain jar contains only $b$ black marbles, $w$ white marbles, and $r$ red marbles. If one marble is to be chosen at random from the jar, is the probability that the marble chosen will be red greater than the probability that the marble chosen will be white?
(1) $\frac{r}{b+w}>\frac{w}{b+r}$
(2) $b-w>r$
153. 15687-!-item-!-187;\#058\&010776

On his trip from Alba to Benton, Julio drove the first x miles at an average rate of 50 miles per hour and the remaining distance at an average rate of 60 miles per hour. How long did it take Julio to drive the first x miles?
(1) On this trip, Julio drove for a total of 10 hours and drove a total of 530 miles.
(2) On this trip, it took Julio 4 more hours to drive the first $x$ miles than to drive the remaining distance.
154. 15741-!-item-!-187;\#058\&010784

To install cable television in a home, a certain cable company charges a basic fee of $\$ 30$ plus a fee of $\$ 20$ for each cable outlet installed in the home. How much did the cable company charge the Horace family for installing cable television in their home?
(1) The cable company installed three cable outlets in the Horace family home.
(2) The amount that the cable company charged the Horace family for installing cable television in their home was equivalent to an average (arithmetic mean) charge of $\$ 30$ per cable outlet installed.
155. 15795-!-item-!-187;\#058\&010817

If 500 is the multiple of 100 that is closest to $x$ and 400 is the multiple of 100 that is closest to $y$, which multiple of 100 is closest to $x+y$ ?
(1) $x<500$
(2) $y<400$
156. 15849-!-item-!-187;\#058\&010825

Each of the numbers $w, x, y$, and $z$ is equal to either 0 or 1 . What is the value of $w+x+y+z$ ?
(1) $\frac{w}{2}+\frac{x}{4}+\frac{y}{8}+\frac{z}{16}=\frac{11}{16}$
(2) $\frac{w}{3}+\frac{x}{9}+{ }^{y}+\frac{z}{27}=\frac{31}{81}$

81
157. 15904-!-item-!-187;\#058\&010840

A certain list consists of five different integers. Is the average (arithmetic mean) of the two greatest integers in the list greater than 70 ?
(1) The median of the integers in the list is 70 .
(2) The average of the integers in the list is 70 .
158. 15958-!-item-!-187;\#058\&010868

A store purchased 20 coats that each cost an equal amount and then sold each of the 20 coats at an equal price. What was the store's gross profit on the 20 coats?
(1) If the selling price per coat had been twice as much, the store's gross profit on the 20 coats would have been $\$ 2,400$.
(2) If the selling price per coat had been $\$ 2$ more, the store's gross profit onthe 20 coats would have been $\$ 440$.

## 159. 16012-!-item-!-187; \#058\&010902

Beth and Jim each received a salary increase. If Jim's salary was increased by the same percent as Beth's salary, did Beth receive a greater dollar increase in salary than Jim?
(1) Before the increases, Jim's salary was greater than $\$ 25,000$.
(2) Before the increases, Jim's salary was ${ }_{-}^{4}$ of Beth's salary.
160. 16066-!-item-!-187;\#058\&010935

All the clients that Company X had at the beginning of last year remained with the company for the whole year. If
Company X acquired new clients during the year, what was the ratio of the number of clients that Company X had at the end of last year to the number of clients that it had at the beginning of lastyear?
(1) The ratio of the number of clients that Company $X$ had at the beginning of last year to the number of new clients that it acquired during the year was 12 to 1 .
(2) Company X had 144 clients at the beginning of last year.
161. 16120-!-item-!-187;\#058\&010949

In the $x y$-coordinate plane, line $m$ and line $k$ intersect at the point $(4,3)$. Is the product of their slopes negative?
(1) The product of the $x$-intercepts of lines $m$ and $k$ is positive.
(2) The product of the $y$-intercepts of lines $m$ and $k$ is negative.
162. 16220-!-item-!-187;\#058\&011014

If $n$ is a positive integer and $r$ is the remainder when $n^{2}-1$ is divided by 8 , what is the value of $r$ ?
(1) $n$ is odd.
(2) $n$ is not divisible by 8 .
163. 16419-!-item-!-187;\#058\&011075

In a certain election, 240 men and 280 women voted for the winning candidate. What was the total number of men and women who voted in the election?
(1) The number of women who voted was $\frac{7}{8}$ the number of men who voted.
(2) Of the men and women who voted, 30 percent of the men and 40 percent of the women voted for the winning candidate.
164. 16473-!-item-!-187;\#058\&011078

If $\mathrm{mv}<\mathrm{pv}<0$, is $\mathrm{v}>0$ ?
(1) $m<p$
(2) $m<0$
165. 16527-!-item-!-187;\#058\&011081

If $x$ and $y$ are points on the number line, what is the value of $x+y$ ?
(1) 6 is halfway between $x$ and $y$.
(2) $y=2 x$

## 166. 16673-!-item-!-187; \#058\&011115

If the prime numbers $p$ and $t$ are the only prime factors of the integer $m$, is $m$ a multiple of $p^{2} t$ ?
(1) $m$ has more than 9 positive factors.
(2) $m$ is a multiple of $p^{3}$.
167. 16727-!-item-!-187;\#058\&011198

A certain circular area has its center at point $P$ and has radius 4, and points $X$ and $Y$ lie in the same plane as the circular area.

Does point $Y$ lie outside the circular area?
(1) The distance between point $P$ and point $X$ is 4.5 .
(2) The distance between point X and point Y is 9 .
168. 16781-!-item-!-187;\#058\&011242

In a certain senior class, 72 percent of the male students and 80 percent of the female students have applied to college. What fraction of the students in the senior class are male?
(1) There are 840 students in the senior class.
(2) 75 percent of the students in the senior class have applied to college.
169. 16835-!-item-!-187;\#058\&011243

Greta and Randy collected bottles to be recycled. How many bottles did Randy collect?
(1) Greta and Randy collected a total of 85 bottles.
(2) Greta collected 15 more bottles than Randy did.
170. 16889-!-item-!-187;\#058\&011265

If $\mathrm{zt}<-3$, is $\mathrm{z}<4$ ?
(1) $z<9$
(2) $t<-4$
171. 16943-!-item-!-187;\#058\&011304

If $k$ is a positive integer and the tens digit of $k+5$ is 4 , what is the tens digit of $k$ ?
(1) $k>35$
(2) The units digit of $k$ is greater than 5 .
172. 17043-!-item-!-187;\#058\&011315

If $a$ and $b$ are nonzero numbers on the number line, is 0 between $a$ and $b$ ?
(1) The distance between 0 and $a$ is greater than the distance between 0 and $b$.
(2) The sum of the distances between 0 and $a$ and between 0 and $b$ is greater than the distance between 0 and the sum $a+$ b.
173. 17097-!-item-!-187;\#058\&011316

In the xy-plane, line $k$ passes through the point $(1,1)$ and line $m$ passes through the point $(1,-1)$. Are lines $k$ and $m$ perpendicular to each other?
(1) Lines k and m intersect at the point $(1,-1)$.
(2) Line $k$ intersects the $x$-axis at the point $(1,0)$.
174. 17151-!-item-!-187;\#058\&011360

Each week Connie receives a base salary of $\$ 500$, plus a 20 percent commission on the total amount of her sales that week in excess of $\$ 1,500$. What was the total amount of Connie's sales last week?
(1) Last week Connie's base salary and commission totaled \$1,200.
(2) Last week Connie's commission was $\$ 700$.
175. 17205-!-item-!-187;\#058\&011383

Ann bought five different kinds of fruit: apples, oranges, pears, mangoes, and bananas. If the number of apples that Ann bought was twice the number of oranges and if the number of pears that Ann bought was the same as the number of apples
and oranges combined, what fraction of the total number of pieces of fruit that Ann bought were pears?
(1) Ann bought a total of 18 pieces of fruit.
(2) Ann bought 5 bananas.
176. 17259-!-item-!-187;\#058\&011402

In 1995 Division A of Company X had 4,850 customers. If there were 86 service errors in Division A that year, what was the service-error rate, in number of service errors per 100 customers, for Division B of Company X in 1995 ?
(1) In 1995 the overall service-error rate for Divisions $A$ and $B$ combined was 1.5 service errors per 100 customers.
(2) In 1995 Division B had 9,350 customers, none of whom were customers of DivisionA.
177. 17313-!-item-!-187;\#058\&011410

If $x$ and $y$ are positive integers, is $x$ an even integer?
(1) $x(y+5)$ is an even integer.
(2) $6 y^{2}+41 y+25$ is an even integer.

## 178. 17370-!-item-!-187; \#058\&011434



In the figure shown, point O is the center of the semicircle and points $\mathrm{B}, \mathrm{C}$, and D lie on the semicircle. If the length of line segment $A B$ is equal to the length of line segment $O C$, what is the degree measure of angle $B A O$ ?
(1) The degree measure of angle COD is 60 .
(2) The degree measure of angle BCO is 40 .
179. 17563-!-item-!-187;\#058\&011544

Working independently at their respective constant rates, pumps $X$ and $Y$ took 48 minutes to fill an empty tank with water. What fraction of the water in the full tank came from pump X ?
(1) Working alone at its constant rate, pump X would have taken 80 minutes to fill the tank with water.
(2) Working alone at its constant rate, pump Y would have taken 120 minutes to fill the tank with water.
180. 17617-!-item-!-187;\#058\&011567

What is the value of $v^{3}-k^{3}$ ?
(1) $\mathrm{vk}>0$
(2) $v-k=6$

## 181. 17723-!-item-!-187; \#058\&011591

Rasheed bought two kinds of candy bars, chocolate and toffee, that came in packages of 2 bars each. He handed out ${ }^{\underline{-}}{ }_{3}$ of the chocolate bars and $\frac{3}{5}$ of the toffee bars. How many packages of chocolate bars did Rasheed buy?
(1) Rasheed bought 1 fewer package of chocolate bars than toffee bars.
(2) Rasheed handed out the same number of each kind of candy bar.
182. 17777-!-item-!-187;\#058\&011599

If $m$ and $r$ are two numbers on a number line, what is the value of $r$ ?
(1) The distance between $r$ and 0 is 3 times the distance between $m$ and 0 .
(2) 12 is halfway between $m$ and $r$.
183. 17831-!-item-!-187;\#058\&011633

If $m$ is a positive odd integer between 2 and 30 , then $m$ is divisible by how many different positive prime numbers?
(1) $m$ is not divisible by 3 .
(2) $m$ is not divisible by 5 .
184. 17933-!-item-!-187;\#058\&011666

If $k$ is an integer greater than 1 , is $k$ equal to $2^{r}$ for some positive integer $r$ ?
(1) k is divisible by $2^{6}$.
(2) $k$ is not divisible by any odd integer greater than 1 .
185. 17987-!-item-!-187;\#058\&011677

Of the 200 members of a certain association, each member who speaks German also speaks English, and 70 of the members speak only Spanish. If no member speaks all three languages, how many of the members speak two of the three languages?
(1) 60 of the members speak only English.
(2) 20 of the members do not speak any of the three languages.
186. 18041-!-item-!-187;\#058\&011685

If $a, b$, and $c$ are integers, what is the value of $a$ ?
(1) $(a-7)(b-7)(c-7)=0$
(2) $b c=18$
187. 18095-!-item-!-187;\#058\&011720

An antique dealer bought a coffee table that was then sold for a profit. What was the selling price of the coffee table?
(1) The dealer's cost for the coffee table was $\$ 340$.
(2) The dealer's gross profit on the coffee table was $15 \%$ of the selling price.
188. 18293-!-item-!-187;\#058\&011863

Is $x^{4}+y^{4}>z^{4}$ ?
(1) $x^{2}+y^{2}>z^{2}$
(2) $x+y>z$

## 189. 18439-!-item-!-187; \#058\&011934

In the $x y$-plane, the line $k$ passes through the origin and through the point $(a, b)$, where $a b \neq 0$. Is $b$ positive?
(1) The slope of line $k$ is negative.
(2) $a<b$
190. 18493-!-item-!-187;\#058\&011993

The numbers of books read by 7 students last year were 10, 5, p, q, r, 29, and 20. What was the range of the numbers of books read by the 7 students last year?
(1) $5<$ p $<$ q
(2) $p<r<15$

## 191. 18547-!-item-!-187;\#058\&011999

Is the positive integer j divisible by a greater number of different prime numbers than the positive integer k ?
(1) j is divisible by 30 .
(2) $k=1,000$
192. 18601-!-item-!-187;\#058\&012081

Is $x y>0$ ?
(1) $x-y>-2$
(2) $x-2 y<-6$
193. 18701-!-item-!-187;\#058\&012184

If $x-y>10$, is $x-y>x+y$ ?
(1) $x=8$
(2) $y=-20$
194. 18755-!-item-!-187;\#058\&012205

If $r$ is the remainder when the positive integer $n$ is divided by 7 , what is the value of $r$ ?
(1) When n is divided by 21 , the remainder is an odd number.
(2) When n is divided by 28 , the remainder is 3 .

## 195. 18858-!-item-!-187;\#058\&012264

If $w, x, y$, and $z$ are integers such that ${ }^{-w}$ and $^{v}$ are integers, is ${ }^{w}+{ }^{v}$ odd?
(1) $w x+y z$ is odd.
(2) $w z+x y$ is odd.
196. 18962-!-item-!-187;\#058\&012363

A recent lunch meeting at a certain club was attended by members and guests. Each member paid $\$ 4$ for the lunch, and each guest paid $\$ 8$ for the lunch. How many of the people attending the meeting were members?
(1) A total of 20 people attended the meeting.
(2) A total of $\$ 92$ was paid for the lunch.
197. 19016-!-item-!-187;\#058\&012397

The integers $m$ and $p$ are such that $2<m<p$ and $m$ is not a factor of $p$. If $r$ is the remainder when $p$ is divided by $m$, is $r>1$ ?
(1) The greatest common factor of m and p is 2 .
(2) The least common multiple of $m$ and $p$ is 30 .
198. 19116-!-item-!-187; \#058\&012496

If @ denotes one of the four arithmetic operations addition, subtraction, multiplication and division, what is the value of 1 @ 2 ?
(1) $\mathrm{n} @ 0=\mathrm{n}$ for all integers n .
(2) $\mathrm{n} @ \mathrm{n}=0$ for all integers n .
199. 19170-!-item-!-187;\#058\&012498

Warehouse W's revenue from the sale of sofas was what percent greater this year than it was last year?
(1) Warehouse W sold 10 percent more sofas this year than it did last year.
(2) Warehouse W's selling price per sofa was $\$ 30$ greater this year than it was last year.
200. 19224-!-item-!-187;\#058\&012506

If $d$ is a positive integer and $f$ is the product of the first 30 positive integers, what is the value of $d$ ?
(1) $10^{d}$ is a factor of $f$.
(2) $d>6$
201. 19278-!-item-!-187;\#058\&012507

If $k$ is a line in the $x y$-plane, what is the slope of $k$ ?
(1) The x -intercept of k is 2 .
(2) The y -intercept of k is 3 .
202. 19378-!-item-!-187;\#058\&012570

The numbers $x$ and $y$ are not integers. The value of $x$ is closest to which integer?
(1) 4 is the integer that is closest to $x+y$.
(2) 1 is the integer that is closest to $x-y$.
203. 19527-!-item-!-187;\#058\&012646

What is the result when x is rounded to the nearest hundredth?
(1) When x is rounded to the nearest thousandth the result is 0.455 .
(2) The thousandths digit of $x$ is 5 .
204. 19581-!-item-!-187;\#058\&012650

If Mary always takes the same route to work, how long did it take Mary to get to work on Friday?
(1) It took Mary 20 minutes to get to work on Thursday.
(2) Mary's average speed on her trip to work was 25 percent greater on Thursday than it was on Friday.
205. 19960-!-item-!-187; \#058\&012914

What was a certain company's revenue last year?
(1) Last year the company's gross profit was $\$ 4,100$.
(2) Last year the company's revenue was 50 percent greater than its expenses.
206. 20297-!-item-!-187; \#058\&013111

In 1984 a certain union had a total of 15,600 members. Was the percent increase in the total number of members in the union from 1984 to 1985 greater than that from 1985 to 1986 ?
(1) From 1984 to 1985 the total number of members in the union increased by 781, and from 1985 to 1986 the total number of members in the union again increased by 781 .
(2) In 1985 the union had a total of 16,381 members, and in 1986 the union had a total of 17,162 members.
207. 20351-!-item-!-187;\#058\&013123

At a certain theater, the cost of each adult's ticket is $\$ 5$ and the cost of each child's ticket is $\$ 2$. What was the average (arithmetic mean) cost of all the adults' and children's tickets sold at the theater yesterday?
(1) Yesterday the ratio of the number of children's tickets sold at the theater to the number of adults' tickets soldat the
theater was 3 to 2 .
(2) Yesterday 80 adults' tickets were sold at the theater.
208. 20405-!-item-!-187;\#058\&013127

At a certain store, each notepad costs $x$ dollars and each marker costs y dollars. If $\$ 10$ is enough to buy 5 notepads and 3 markers, is $\$ 10$ enough to buy 4 notepads and 4 markers instead?
(1) Each notepad costs less than $\$ 1$.
(2) $\$ 10$ is enough to buy 11 notepads.
209. 20459-!-item-!-187;\#058\&013172

The cost of each adult's ticket for a certain concert was $\$ 30$, and the cost of each child's ticket for the concert was $\$ 24$. If Hannah purchased tickets for this concert, what was the average (arithmetic mean) cost per ticket?
(1) Hannah purchased twice as many children's tickets as adults' tickets.
(2) Hannah purchased 4 children's tickets.
210. 20513-!-item-!-187;\#058\&013256

For each order, a mail-order bookseller charges a fixed processing fee and an additional shipping fee for each book in the order. Rajeev placed five different orders with this bookseller--an order for 1 book in January, an order for 2 books in February, an order for 3 books in March, an order for 4 books in April, and an order for 5 books in May. What was the total of Rajeev's processing and shipping fees for these five orders?
(1) Rajeev's processing and shipping fees were $\$ 1.00$ more for his order in March than for his order inJanuary.
(2) The total of Rajeev's shipping fees for the five orders was $\$ 7.50$.
211. 20614-!-item-!-187;\#058\&013294

A certain economics class consists of 50 women and 30 men. How many of the men in the class are business majors?
(1) 40 percent of the women in the class are businessmajors.
(2) 50 percent of all the people in the class are business majors.
212. 20668-!-item-!-187; \#058\&013295

For a certain play performance, adults' tickets were sold for $\$ 12$ each and children's tickets were sold for $\$ 8$ each. How many children's tickets were sold for the performance?
(1) The total revenue from the sale of adults' and children's tickets for the performance was $\$ 5,040$.
(2) The number of adults' tickets sold for the performance was $\frac{1}{3}$ the total number of adults' and children's tickets sold for the performance.
213. 20722-!-item-!-187;\#058\&013303

Linda, Robert, and Pat packed a certain number of boxes with books. What is the ratio of the number of boxes of books that Robert packed to the number of boxes of books that Pat packed?
(1) Linda packed 30 percent of the total number of boxes of books.
(2) Robert packed 10 more boxes of books than Pat did.
214. 20776-!-item-!-187;\#058\&013419

Is the measure of one of the interior angles of quadrilateral $A B C D$ equal to 60 degrees?
(1) Two of the interior angles of $A B C D$ are right angles.
(2) The degree measure of angle $A B C$ is twice the degree measure of angle $B C D$.
215. 20830-!-item-!-187;\#058\&013425

On the number line, the distance between point $A$ and point $C$ is 5 and the distance between point $B$ and point $C$ is 20 . Does point $C$ lie between point $A$ and point $B$ ?
(1) The distance between point $A$ and point $B$ is 25 .
(2) Point $A$ lies to the left of point $B$.
216. 20930-!-item-!-187; \#058\&013466

Is the three-digit number n less than 550 ?
(1) The product of the digits in n is 30 .
(2) The sum of the digits in n is 10 .
217. 20984-!-item-!-187;\#058\&013473

If n is a three-digit positive integer, what is the sum of the digits of n ?
(1) The hundreds digit of n is 3 times the units digit.
(2) The hundreds digit of n is 3 more than the tens digit.
218. 21130-!-item-!-187;\#058\&013592

The retail price of a certain refrigerator is 1.6 times its wholesale price. What is the difference between the retail price and the wholesale price of the refrigerator?
(1) The wholesale price of the refrigerator is $\$ 200$.
(2) The retail price of the refrigerator is $\$ 320$.

## Practice Test 2 Data Sufficiency Keys:

1. D 2. E 3. A 4. C 5. C 6. D 7. B 8. C 9. C 10. C 11. B 12. A 13. C 14. C 15. D 16. D 17. B 18. D 19. C 20. D 21. B 22. C 23. B 24. D 25. C 26. C 27. E 28. D 29. A 30. D 31. B 32. A 33. D 34. C 35. E 36. E 37. C 38. E 39. C 40. C 41. A 42. D 43. E 44. C 45. D 46. E 47. E 48. C 49. D 50. C 51. B 52. E 53. A 54. D 55. A 56. E 57. C 58. C 59. A 60. B 61. C 62. B 63. C 64. D 65. C 66. B 67. A 68. D 69. E 70. D 71. D 72. C 73. A 74. E 75. C 76. C 77. C 78. C 79. B 80. B 81. E 82. C 83. B 84. E 85. C 86. E 87. C 88. B 89. A 90. C 91. C 92. E 93. D 94. D 95. A 96. D 97. E 98. E 99. C 100. E 101. D 102. E 103. C 104. E 105. E 106. C 107. D 108. A 109. B 110. E 111. D 112. D 113. E 114. E 115. C 116. D 117. A 118. E 119. C 120. D 121. B 122. C 123. C 124. C 125. A 126. A 127. C 128. D 129. A 130. A 131. B 132. E 133. A 134. B 135. C 136. E 137. C 138. D 139. B 140. B 141. C 142. C 143. E 144. C 145. D 146. B 147. E 148. C 149. A 150. D 151. D 152. A 153. A 154. D 155. E 156. D 157. D 158. B 159. B 160. A 161. C 162. A 163. B 164. D 165. A 166. B 167. C 168. B 169. C 170. E 171. B 172. B 173. E 174. D 175. E 176. C 177. E 178. D 179. D 180. E 181. C 182. E 183. A 184. В 185. C 186. C 187. C 188. E 189. C 190. E 191. C 192. C 193. D 194. B 195. B 196. C 197. A 198. B 199. E 200. C 201. C 202. E 203. C 204. C 205. C 206. D 207. A 208. E 209. A 210. E 211. C 212. C 213. E 214. E 215. A 216. C 217. E 218. D
