

Capgemini Test 4

1

Section A

The number 13409 and 16760 when divided by a 4 digit integer and leave the same remainder then the value of n is

1127

1117

1357

1547

Explanation:

Here 13409 and 16760 on division by n leaves the same remainder hence can be written as $n * m + r$ and can be written $n*p+r$. There subtracting the 2 equation we get $n * (m - p) = 3351 = 1117*3$. But n is 4 digit number hence n is 1117

2

If the price of petrol increases by 25%, by how much must a user cut down his consumption so that his expenditure on petrol remains constant?

25%

16.67%

20%

33.3%

Explanation:

Let the price of petrol be Rs.100 per litre. Let the user use 1 litre of petrol. Therefore, his expense on petrol = $100 * 1 = \text{Rs.}100$

Now, the price of petrol increases by 25%. Therefore, the new price of petrol = Rs.125.

As he has to maintain his expenditure on petrol constant, he will be spending only Rs.100 on petrol. Let 'x' be the number of liters of petrol he will use at the new price.

Therefore, $125*x = 100 \Rightarrow x = (100/125) = 0.8$ liters.

He has cut down his petrol consumption by 0.2 liters = $0.2 * 100 = 20\%$ reduction.

3

Ten years ago, the ages of the members of a joint family of eight people added up to 231 years. Three years later, one member died at the age of 60 years and a child was born during the same year. After another three years, one more member died, again at 60, and a child was born during the same year. The current average age of this eight member joint family is nearest to:

- 23 years
- 22 years
- 21 years
- 25 years
- 24 years

Explanation:

The sum of the ages of the members of the family ten years ago = 231

The sum of the ages of the members of the family seven years ago

$$= 231 + (3 \times 8) - 60 = 195$$

The sum of the ages of the members of the family four years ago

$$= 195 + (3 \times 8) - 60 = 159$$

The sum of the ages of the members of the family now = $159 + (4 \times 8) = 191$

Required average = $191/8 = 23.875 \approx 24$

4

Two person are climbing up on two moving escalators which have 120 steps. The ratio of 1st person's speed to that of 1st escalator is 2: 3. The ratio of 2nd person's speed to that of 2nd escalator is 3: 5. Find the total number of steps they both have taken together.

- 85
- 93
- 80
- 75

Explanation:

2 steps of 1st person = 3 steps of escalators

Hence steps for 1st person = $(2/3) \times 120 / (1 + (2/3)) = 120 \times 3/2 \times 2/3 = 48$

Similarly steps for second person = $3/2 \times 120 \times 5/8 = 45$

Total steps = $48+45 = 93$

5

If the product of n positive real numbers is unity, then their sum is necessarily

- a multiple of n
- equal to $n + n!$
- never less than n
- a positive integer

Explanation:

Consider some value E.g. 2, $1/2$ and 1. Thus, $n = 3$ and the sum of the three numbers = 3.5. Thus options 1, 2 and 4 get eliminated.

6

The average temperature on Wednesday, Thursday and Friday was 25° . The average temperature on Thursday, Friday and Saturday was 24° . If the temperature on Saturday was 27° , what was the temperature on Wednesday?

- 24 degrees
- 21 degrees
- 27 degrees
- 30 degrees

Explanation:

Total temperature on Wednesday, Thursday and Friday was $25 * 3 = 75^\circ$

Total temperature on Thursday, Friday and Saturday was $24 * 3 = 72^\circ$

Hence, difference between the temperature on Wednesday and Saturday = 3°

If Saturday temperature = 27° , then Wednesday's temperature = $27 + 3 = 30^\circ$

7

Once I had been to the post-office to buy stamps of five rupees, two rupees and one rupee. I paid the clerk Rs 20, and since he did not have change, he gave me three more stamps of one rupee. If the number of stamps of each type that I had ordered initially was more than one, what was the total number of stamps that I bought?

- 10
- 9
- 12
- 8

Explanation:

At least two stamps of each type were ordered initially. So Rs. $2(5 + 2 + 1) =$ Rs. 16 have been spent.

That leaves Rs. $(20 - 16) =$ Rs. 4. In this Rs. 4, three more stamps of one rupee were given, thus accounting for Rs. 19 in all. Since one more rupee remains, it means that one more stamps of Rs. 2 were

bought initially. So the total number of stamps is $2(\text{of Rs. } 5) + 3(\text{of Rs. } 2) + 4(\text{of Re. } 1)$.

8

I sold two watches for Rs. 300 each, one at a loss of 10% and the other at a profit of 10%. What is the percent loss (-) or the percent profit (+) that resulted from the transaction?

- (+) 10
 (-) 1
 (+) 1
 0

Explanation:

The % loss is given by $(p^2/100)$. In the given problem, $p = 100$, therefore % loss = 1.

9

A man travels three-fifths of distance AB at a speed of $3a$, and the remaining at a speed of $2b$. If he goes from B to A and back at a speed of $5c$ in the same time, then:

- $1/a + 1/b = 1/c$
 $a + b = c$
 $1/a + 1/b = 2/c$
 None of these

Explanation:

Assume the distance from A to B to be $5d$. Time taken is given as (distance/speed). So for travelling a distance $3d$, the man takes time = $(3d/3a) = (d/a)$. Similarly for travelling a distance $2d$, the man takes time = $(2d/2b) = (d/b)$. He goes from B to a and back, i.e. covers a distance of $10d$ at a speed of $5c$. The time taken for this is $(10d/5c) = (2d/c)$. Equating the two, we get, $[(1/a) + (1/b) = (2/c)]$.

10

Instead of a meter scale, a cloth merchant uses a 120 cm scale while buying, but uses an 80 cm scale while selling the same cloth. If he offers a discount of 20 percent on cash payment, what is his overall percent profit?

- 20%
 25%
 40%
 15%

Explanation:

The shopkeeper uses a 120 cm scale instead of a 100 cm scale. Thus, while buying 100 cm of cloth, he pays just $(100/120)$, i.e. $(5/6)$ times the actual worth of the goods. If he has 100 cm of material, then while selling, he charges the customer for $(100/80)$, i.e. $(5/4)$ times the actual worth of goods sold. On this SP, he gives a discount of 20%, thus making the actuarial SP as $(0.8)(5/4) = 1$. Thus for 100 cm of cloth, his

CP is $(5/6)$ while the SP is 1. This gives a profit of 20% on the CP.

11

In 4 years, the SI on a certain sum of money is $7/25$ of the principal. What is the annual rate of interest?

- 4%
- 4.5%
- 7%
- 9%

Explanation:

$$\text{Simple interest} = (P \cdot 4 \cdot r) / 100$$

$$(7P/25) = (P \cdot 4 \cdot r) / 100$$

$$\Rightarrow 7/25 = (4r) / 100$$

$$\Rightarrow r = 7\%$$

12

In a mile race Akshay can be given a start of 128 meters by Bhairav. If Bhairav can give Chinmay a start of 4 meters in a 100 meters dash, then who out of Akshay and Chinmay will win a race of one and half mile, and what will be the final lead given by the winner to the loser?

- Akshay, $1/12$ miles
- Chinmay, $1/32$ miles
- Akshay, $1/24$ miles
- Chinmay, $1/16$ miles

Explanation:

When Bhairav (B) covers 1600 m, Akshay (A) covers $(1600 - 128)$ m. So, when B covers $(1600/16) = 100$ m, A covers $(128/16)$ m = 8 m less. When B covers 100 m, C covers $(100 - 4) = 96$ m. Thus the ratio in which A and C cover distances is 92: 96. In 96 m, C gains $(96 - 92) = 4$ m over A. So in 1.5 miles (i.e. 2400 m), C gains 100 m = $(1/16)$ miles over A.

13

How many integers, greater than 999 but not greater than 4000, can be formed with the digits 0, 1, 2, 3 and 4, if repetition of digits is allowed?

- 499
- 500
- 375
- 376

501

Explanation:

The minimum number that can be formed is 1000 and the maximum number that can be formed is 4000. As 4000 is the only number in which the first digit is 4, first let us calculate the numbers less than 4000 and then we will add 1 to it. Therefore First digit can be 1, 2 or 3. Remaining 3 digits can be any of the 5 digits. Therefore Total numbers that can be formed, which are less than 4000 = $3 \times 5 \times 5 \times 5 = 375$.

Total numbers that satisfy the given condition = $375 + 1 = 376$.

14

Thirty days are in September, April, June and November. Some months are of thirty one days. A month is chosen at random. Then its probability of having exactly three days less than maximum of 31 is

15/16

1

3/48

none of these

Explanation:

February is the only month having 28 days which is three days less than the maximum of 31. Probability of choosing February is 1 month from 12 months = $1/12$

15

What is the number of distinct terms in the expansion of $(a + b + c)^{20}$?

231

253

242

210

Explanation:

$(a + b + c)^1 = a + b + c$ [i.e. 3 terms = $(1 + 2)$ terms]

$(a + b + c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ac$ [i.e. 6 terms = $(1 + 2 + 3)$ terms]

$(a + b + c)^3 = a^3 + b^3 + c^3 + 6abc + 3ab^2 + 3ac^2 + 3a^2b + 3bc^2 + 3a^2c + 3b^2c$ [i.e. 10 terms = $(1 + 2 + 3 + 4)$ terms]

Similarly, $(a + b + c)^n$ will have $(1 + 2 + 3 + \dots + (n + 1))$ terms

Therefore $(a + b + c)^{20}$ will have $(1 + 2 + 3 + \dots + 21) = 231$ terms.

16

If $x = (16^3 + 17^3 + 18^3 + 19^3)$, then x divided by 70 leaves a remainder of

- 0
 1
 69
 35

Explanation:

$$x = 16^3 + 17^3 + 18^3 + 19^3 = (16^3 + 19^3) + (17^3 + 18^3)$$

$$(16 + 19)(16^2 + 16 \times 19 + 19^2) + (17 + 18)(17^2 + 17 \times 18 + 18^2)$$

$$= 35 \times (\text{an odd number}) + 35 \times (\text{another odd number}) = 35 \times (\text{an even number}) = 35 \times (2k) \dots (k \text{ is a positive integer}) \therefore x = 70k \therefore x \text{ is divisible by } 70.$$

Remainder when x is divided by 70 = 0.

17

A chemical plant has four tanks (A, B, C and D), each containing 1000 liters of a chemical. The chemical is being pumped from one tank to another as follows: From A to B at 20 liters/minute From C to A at 90 liters/minute From A to D at 10 liters/minute From C to D at 50 liters/minute From B to C at 100 liters/minute From D to B at 110 liters/minute Which tank gets emptied first and how long does it take (in minutes) to get empty after pumping starts?

- 16.66
 20
 20
 25

Explanation:

The change in the amount of chemical in each tank after every minute is as follows:

$$\text{A: } -20 - 10 + 90 = 60$$

$$\text{B: } -100 + 110 + 20 = 30$$

$$\text{C: } -50 - 90 + 100 = -40$$

$$\text{D: } -110 + 10 + 50 = -50$$

Since tank D loses the maximum amount of chemical in a minute, it will be emptied first.

Let n minutes be the time taken by tank D to get empty. $1000 - 50n = 0$

$n = 20$ minutes

18

Find the next term in the series 36 31 29 24 22 17 15

13 11

10 5

13 8

12 7

10 8

Explanation:

This is an alternating subtraction series, which subtracts 5, then 2, then 5, and so on.

19

A manufacturer has 200 liters of acid solution which has 15% acid content. How many liters of acid solution with 30% acid content may be added so that acid content in the resulting mixture will be more than 20% but less than 25%?

More than 100 liters but less than 300 liters

More than 120 liters but less than 400 liters

More than 100 liters but less than 400 liters

More than 120 liters but less than 300 liters

None of the These

Explanation:

Amount of acid content in the solution = 15% of 200 = 30 liters

Let the amount of solution to be added be x

When acid content is 20%, we get

$$150 + 1.5x = 200 + x$$

$$50 = 0.5x$$

$$x = 100 \text{ liters}$$

When acid content is 25%, we get

$$120 + 1.2x = 200 + x$$

$$80 = 0.2x$$

$x = 400$ liters

So the solution to be added should be more than 100 liters but less than 400 liters.

20

The average of nine numbers is M and the average of three of these is p . If the average of remaining numbers is N , then

- $M = N + P$
- $2M = N + P$
- $3M = 2N + P$
- $3M = 2P + N$

Explanation:

Let $A_1, A_2, A_3, \dots, A_9$ be the numbers and their average = M

So $A_1 + A_2 + \dots + A_9 = 9M$

$A_1 + A_2 + A_3 = 3P$ (since average of A_1, A_2 & $A_3 = P$)

$A_4 + A_5 + \dots + A_9 = 6N$ (since average of A_4 to $A_9 = N$)

adding above three equations and divide by 3

$\Rightarrow 3M = 2N + P$

21

Let S be a set of positive integers such that every element n of S satisfies the conditions

a) $1000 \leq n \leq 1200$

b) every digit in n is odd Then how many elements of S are divisible by 3?

- 9
- 10
- 11
- 12

Explanation:

n will be of the form $11ab$, where a and b are odd numbers.

We are looking for all n 's divisible by 3. $\therefore 1 + 1 + a + b = 3$ or 9 or 12 or 15 or $18 \therefore a + b = 1$ or 4 or 7 or 10 or 13 or $16 \therefore a + b = 1$ or 7 or 13 is not possible as the sum of two odd numbers cannot be odd. $\therefore (a,$

b) = (1, 3), (3, 1), (1, 9), (3, 7), (5, 5), (7, 3), (9, 1), (7, 9), (9, 7) \therefore 9 elements of S are divisible by 3.

22

The Intersection of two cubes cannot be

- cube
- triangle
- a rectangle
- none of these

Explanation:

: Cubes are 3 dimensional so their interaction will be two dimensional. Hence, it cannot be a cube.

23

Find the next term in series 17 14 14 11 11 8 8

- 8 5
- 5 2
- 8 2
- 5 5

Explanation:

In this simple subtraction with repetition series, each number is repeated, then 3 is subtracted to give the next number, which is then repeated, and so on.

24

A rainy day occurs once in every 10 days. Half of the rainy days produce rainbows. What percent of all the days do not produce rainbow?

- 95%
- 10%
- 50%
- 5%

Explanation:

Two rainy days occur in 20 days. So, rainbow will occur once in 20 days. Rest 19 days will have not rainbow. % of not producing rainbows = $19/20 * 100 = 95\%$

25

If 5 spiders can catch five flies in five minutes. How many flies can hundred spiders catch in 100 minutes?

- 100
- 1000
- 50
- 2000

Explanation:

One spider catches one fly in 5 minutes.

100 spider catches 100 fly in 5 minutes.

In 100 minutes $100 \times 20 = 2000$ flies will be caught.

26

SECTION B

DIRECTIONS for Questions 26 and 29 : Answer the questions on the basis of the information given below.

In a local pet store, seven puppies wait to be introduced to their new owners. The puppies, named Ashlen, Blakely, Custard, Daffy, Earl, Fala and Gabino, are all kept in two available pens. Pen 1 holds three puppies, and pen 2 holds four puppies. If Gabino is kept in pen 1, then Daffy is not kept in pen 2. If Daffy is not kept in pen 2, then Gabino is kept in pen 1. If Ashlen is kept in pen 2, then Blakely is not kept in pen 2. If Blakely is kept in pen 1, then Ashlen is not kept in pen 1.

Which of the following groups of puppies could be in pen 2?

- Gabino, Daffy, Custard, Earl.
- Blakely, Gabino, Ashlen, Daffy
- Ashlen, Gabino, Earl, Custard
- Blakely, Custard, Earl, Fala.

Explanation:

Consider option A: If Gabino, Daffy, Custard and Earl are in pen 2, then Ashlen and Blakely will be in pen 1 which is not possible according to the last condition given.

Therefore Option 1 is not correct.

Consider option B:

According to condition 3 both Ashlen and Blakely cannot be in pen 2 together. Therefore Option 2 is not

correct.

Consider option C: In the second condition it is given that if Daffy is not kept in pen 2 then Gabino is kept in pen 1. Therefore Option 3 is not correct.

27

If Earl shares a pen with Fala, then which of the following MUST be true?

- Gabino is in pen 1 with Daffy.
- Custard is in pen 2.
- Blakely is in pen 2 and Fala is in pen 1.
- Earl is in pen 1.

Explanation:

If Earl shares a pen with Fala, then Earl and Fala can both be either in pen 1 or in pen 2,

Now, if Earl and Fala both are in pen 1 then one of Ashlen and Blakely have to be in pen 2 as they both cannot be together in one pen.

Therefore Custard has to be in pen 2.

If Earl and Fala both are in pen 2 then also one of Ashlen and Blakely have to be in pen 2. Then Gabino and Daffy will be in pen 1 with one of Ashlen and Blakeley.

Therefore Custard will be in pen 2.

Therefore In both the cases Custard will be in pen 2.

Hence, option B

28

If Earl and Fala are in different pens, then which of the following must NOT be true?

- Fala shares a pen with Custard.
- Gabino shares a pen with Ashlen.
- Earl is in a higher-numbered pen than Blakely.
- Blakely shares pen 2 with Earl and Daffy.
- Custard is in a higher-numbered pen than Fala.

Explanation:

If Earl and Fala both are in different pens then there are two cases possible

Case (i): Earl is in pen 1 and Fala in pen 2.

Case (ii): Fala is in pen 1 and Earl is in pen 2.

Case (i) Earl is in pen 1 and Fala is in pen 2.

Gabino and Daffy have to be together in one pen and they cannot be in pen 1 as one of Ashlen and Blakely have to be in pen 1 and pen 1 can hold 3 puppies.

Therefore Gabino and Daffy will be in pen 2, and Custard has to be in pen 1.

Pen 1 will have Earl, Custard and one of Ashlen and Blakely.

Pen 2 will have Fala, Gabino, Daffy and one of Ashlen and Blakely.

Custard has to be in pen 1 Custard cannot be in a higher-numbered pen than Fala.

Similarly in Case (ii) Fala will be in pen 1 but Custard will also be in pen 1.

Custard cannot be in a higher-numbered pen than Fala.

Option 5 must not be true.

Hence, option 5

29

DIRECTIONS for Questions 29 and 33: Answer the questions on the basis of the information given below.

Five colleagues pooled their efforts during the office lunch-hour to solve the crossword in the daily paper. Colleagues: Mr. Bineet, Mr. Easwar, Ms. Elsie, Ms. Sheela, Ms. Titli. Answers: Burden, Barely, Baadshah, Rosebud. Silence.

Numbers: 4 down, 8 across, 15 across, 15 down, 21 across. Order: First, second, third, fourth, fifth.

1. Titli produced the answer to 8 across, which had the same number of letters as the previous answer to be inserted, and one more than the subsequent answer which was produced by one of the men.
2. It was not Bineet who solved the clue to 'Burden', and Easwar did not solve 4 down.
3. The answers to 15 across and 15 down did not have the same number of letters.
4. 'Silence', which was not the third word to be inserted, was the answer to an across clue.
5. 'Barely' was the first word to be entered in the grid, but 'Baadshah' was not the second answer to be found.
6. Elsie's word was longer than Bineet's; Sheela was neither the first nor the last to come up with an answer.
7. Fifth one to be worked out was an answer to an across clue.

What was Sheela's word?

- Baadshah
- Silence
- Rosebud
- Barely

Explanation:

: =>In condition (1) it is given that the answer that Titli produced had the same number of letters as the previous answer and one more than the subsequent answer.

The answer given by Titli can be Rosebud or Silence.

=>It is given that Barely was the first word to be entered.

The word entered after the answer given by Titli will be Burden.

The order of these three words can be: Rosebud, Silence and Burden or Silence, Rosebud and Burden. It is also given that Baadshah is not the second word.

Therefore Baadshah has to be the fifth word entered. The order of answers will be:

Barely, Rosebud, Silence, Burden and Baadshah.

OR

Barely, Silence, Rosebud, Burden and Baadshah.

=>From condition 4 we get that Silence is not the third word. The order of answers will be: Barely, Silence, Rosebud, Burden and Baadshah. i.e. Rosebud was the answer given by Titli. Therefore The arrangement till now can be represented in the form of table as shown below:

Order	Answer	Colleague	Number
First	Barely		
Second	Silence		
Third	Rosebud	Titli	8 across
Fourth	Burden		

Fifth Baadshah

One of the men gave the answer after the answer given by Titli. And from condition 2 we get that it was not Bineet who gave the answer Burden. Therefore the answer 'Burden' was given by Mr. Easwar.

=>From conditions 4 and 7 we get that 'Silence' and the Fifth answer are answers to across clues. Sheela was neither the first nor the last to come up with the answer.

Sheela must have answered the second clue.

=>From condition 6 we get that Elsie's answer was longer than Bineet's. Elsie must have answered the fifth clue and Bineet must have answered the first clue. It is given that Easwar did not solve 4 down.

Order	Answer	Colleague	Number
First	Barely	Bineet	4 down
Second	Silence	Sheela	across
Third	Rosebud	Titli	8 across
Fourth	Burden	Easwar	15 down
Fifth	Baadshah	Elsie	across

Now the number of the second and fifth answer is not known, only it is known that they were answers to across clues.

30

What could be Titli's answer?

- First
- Second
- Third
- Fourth

Explanation: Titli gave the answer to the third question.

31

What was Bineet's word?

- Barely
- Burden

- Silence
- Rosebud

Explanation:

Bineet's word is Barely.

32

What was Easwar's number?

- 4 down
- 21 across
- 8 across
- 15 down

Explanation:

Easwar's number is 15 down.

33

What was Titli's order?

- First
- Second
- Third
- Fourth

Explanation: Titli gave the answer to the third question.

34

If $y = FO(D.V.)$ is not a null set, it implies that:

- All fish are vertebrates.
- All dogs are vertebrates.
- Some fish are dogs.
- None of the above.

Explanation:

@ implies that some elements $(Dogs \cap Fish) \neq \emptyset$ are common between Fish and Dogs.

35

DIRECTIONS for Questions 34 and 37: Answer the questions on the basis of the information given below:

A and B are two sets (e.g. A = mothers, B = women). The elements that could belong to both the

sets (e.g. women who are mothers) is given by the set $C = A \cap B$. The elements

which could belong to either A or B, or both, is indicated by the set $D = A \cup B$. A set that does not contain any elements is known as a null set, represented by \emptyset (for example, if

none of the women in the set B is a mother, then $C = A \cap B$ is a null set, or $C = \emptyset$. Let 'V' signify the set of all vertebrates; 'M' the set of all mammals; 'D' dogs; 'F' fish; 'A' Alsatian and 'P' a dog named Pluto

If $P \cap A = \emptyset$ and $P \cup A = D$, then which of the following is true?

- Pluto and Alsatian are dogs
- Pluto is an Alsatian
- Pluto is not an Alsatian
- D is a null set.

Explanation:

$P \cap A = \emptyset$ implies P into is not an Alsatian, but $P \cup A = D$ implies both

P and A are dogs

36

If $Z = (P \cap D) \cup M$, then

- The elements of Z consist of Pluto the dog or any other mammal.
- Z implies any dog or mammal.
- Z implies Pluto or any dog that is a mammal.
- Z is a null set.

Explanation:

$Z = (Pluto \cap Dogs) \cup Mammals = Pluto \cup Mammals$.

37

Given that $X = M \cap D$ is such that $X = D$, which of the following is

true?

- All dogs are mammals
- Some dogs are mammals.
- $X = \emptyset$
- All mammals are dogs.

Explanation:

$X = \text{Mammals} \cap \text{Dogs} = \text{Dogs}$, hence dogs are mammals.

38

DIRECTIONS for Questions 38 and 42: Answer the questions on the basis of the information given below:

Five numbers A, B, C, D and E are to be arranged in an array in such a manner that they have a common prime factor between two consecutive numbers. These integers are such that:

A has a prime factor P

B has two prime factors Q and R

C has two prime factors Q and S

D has two prime factors P and S

E has two prime factors P and R

Which of the following is an acceptable order, from left to right, in which the numbers can be arranged?

D, E, B, C, A

B, A, E, D, C

B, C, D, E, A

B, C, E, D, A

Explanation:

No.1 A ---- P D----(S/ P) E ---- (P/R) B ---- (R/Q) C ---- (Q/S)

OR

D --- (S/P) A---- P E ---- (P/R) B ---- (R/Q) C ---- (Q/S)

NO.2

A --- P E ---- (P/R) B ----- (R/Q) C ---- (Q/S) D----(S/ P)

NO.3

A --- P E ---- (P/R) D----(S/ P) C ---- (Q/S) B ----- (R/Q)

39

If the number E is arranged in the middle with two numbers on either side of it, all of the following must be true, EXCEPT:

- A and D are arranged consecutively
- B and C are arranged consecutively
- B and E are arranged consecutively
- A is arranged at one end in the array

Explanation:

By checking the given options

40

If number E is not in the list and the other four numbers are arranged properly, which of the following must be true?

- A and D can not be the consecutive numbers.
- A and B are to be placed at the two ends in the array.
- A and C are to be placed at the two ends in the array.
- C and D can not be the consecutive numbers.

Explanation: A --- P D----(S/ P) C ---- (Q/S) B ----- (R/Q)

41

If number B is not in the list and other four numbers are arranged properly, which of the following must be true?

- A is arranged at one end in the array.
- C is arranged at one end in the array.
- D is arranged at one end in the array.
- E is arranged at one end in the array.

Explanation:

A --- P E ---- (P/R) D----(S/ P) C ---- (Q/S)

or

E ---- (P/R) A --- P D---(S/ P) C ---- (Q/S)

42

If B must be arranged at one end in the array, in how many ways the other four numbers can be arranged?

- 1
- 2
- 3
- 4

Explanation:

B ---- (R/Q) C ---- (Q/S) D---(S/ P) E ---- (P/R) A --- P

OR

B ---- (R/Q) E ---- (P/R) A --- P D---(S/ P) C ---- (Q/S)

43

What is the ratio of the two liquids A and B in the mixture finally, if these two liquids kept in three vessels are mixed together

Statement 1. The ratio of liquid A to liquid B in the first and second vessel is, respectively, 3: 5, 2: 3.

Statement 2. The ratio liquid A to liquid B in vessel 3 is 4: 3.

- using 1st Statement only
- using 2nd statement only
- using both 1st and 2nd statement
- using 1st or 2nd statement
- Cannot be answered even by using both the statement

Explanation:

Although the containers are of equal volume, it is not known to what extent these containers are filled by the liquids A and B. (i.e. the first container might be half full, while the second might be two-thirds full). Until such details are known, the final ratio of liquids A and B cannot be found out.

44

What is the number of type 2 widgets produced, if the total number of widgets produced is 20,000?

Statement 1. If the production of type - 1 widgets increases by 10% and that of type-2 decreases by 6%, the total production remains the same.

Statement 2. The ratio in which type - 1 and type - 2 widgets are produced is 2: 1.

If the number of type - 1 widgets produced is A and that of type - 2 widgets is B,

- using 1st Statement only
- using 2nd statement only
- using both 1st and 2nd statement
- using 1st or 2nd statement
- Cannot be answered even by using both the statement

Explanation:

then we get the basic equation $[A + B = 20,000]$ from the data in the question. From 1st statement, we get $[1.1 A + 0.94 B = 20,000]$. This is enough to give us the value of B. Similarly from 2nd statement, we get $A = 2B$. This is enough to give us the value of B.

45

How old is Sachin in 1997?

Statement 1. Sachin is 11 years younger than Anil whose age will be prime number in 1998.

Statement 2. Anil's age was a prime number in 1996.

- using 1st Statement only
- using 2nd statement only
- using both 1st and 2nd statement
- using 1st or 2nd statement
- Cannot be answered even by using both the statement

Explanation:

Anil's age was a prime number in 1996 and 1998. So Anil's age in these two years can be a pair of such numbers which are prime, and differ by 2. We have many such pairs - (3, 5), (5, 7), (11, 13)..... And it is not possible to arrive at a unique answer.

46

How many different triangles can be formed?

Statement 1. There are 16 coplanar, straight lines in all.

Statement 2. No two lines are parallel.

- using 1st Statement only
- using 2nd statement only
- using both 1st and 2nd statement
- using 1st or 2nd statement
- Cannot be answered even by using both the statement

Explanation: Although it is known that none of the lines are parallel to each other, there might be the case wherein all the lines have exactly one point of intersection, or eight lines with one point and the other eight with another point of intersection. Unless something about the relative arrangement of these lines is known, one cannot arrive at definite answer.

47

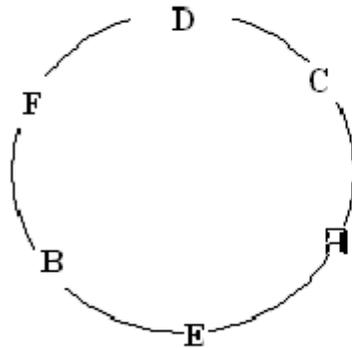
Around a circular table six persons A, B, C, D, E and F are sitting. Who is on the immediate left to A?

Statement 1: B is opposite to C and D is opposite to E

Statement 2: F is on the immediate left to B and D is to the left of B

- using 1st Statement only
- using 2nd statement only
- using both 1st and 2nd statement
- using 1st or 2nd statement
- Cannot be answered even by using both the statement

We can analyze the seating arrangement from 1st and 2nd statement



Explanation:

48

What is the total worth of Lakhiram's assets?

Statement 1. Compound interest at 10% on his assets, followed by a tax of 4% on the interest, fetches him Rs. 15000 this year.

Statement 2. The interest is compounded once every four months. Let Lakhiram's assets be worth Rs. X.

- using 1st Statement only
- using 2nd statement only
- using both 1st and 2nd statement
- using 1st or 2nd statement
- Cannot be answered even by using both the statement

Explanation:

In the case of compound interest, the period of reckoning or calculation of

CI is very important. This information is given in statement (b). The annual CI rate is 10%, so the rate for 4 months is $(4/12) 10 = (10/3) \%$. So the total CI after one year, in terms of X, may be written as: $CI = X [(1 + ((10/3)/100))^3]$, because in a year, there are 3 terms of 4 months. This interest is followed by a tax of 4% paid by him which ultimately fetches Lakhiram Rs. 1500. This data us to find the value of X, so the answer is

Section: Logical Reasoning-> logical Abduction -> Level 2

49

A, B, C, D, E are five positive numbers. $A + B < C + D$, $B + C < D + E$, $C + D < E + A$. Is 'A' the

greatest?

Statement 1: $D + E < A + B$.

Statement 2: $E < C$.

- using 1st Statement only
- using 2nd statement only
- using both 1st and 2nd statement
- using 1st or 2nd statement
- Cannot be answered even by using both the statement

Explanation:

$$A + B < C + D$$

$$B + C < D + E$$

$$C + D < E + A$$

$$D + E < A + B$$

$$E < C$$

$$\text{Adding, } A + 2B < 2A + B \text{ i.e. } B < A$$

50

A sequence of numbers a_1, a_2, \dots is given by the rule $a_n^2 = a_{n+1}$. Do 3 appear in the sequence?

Statement 1: $a_1 = 2$

Statement 2: $a_3 = 16$

- using 1st Statement only
- using 2nd statement only
- using both 1st and 2nd statement
- using 1st or 2nd statement
- Cannot be answered even by using both the statement

Explanation:

Put $n = 1$ in $a_n^2 = a_{n+1}$

$$a_1^2 = a_2, a_2^2 = a_3, a_3^2 = a_4 \text{ etc}$$

From statement 1: $a_1^2 = a_2$

$$\text{i.e. } 2^2 = a_2 \text{ or } a_2 = 4$$

Now, $a_2^2 = a_3$

$$\text{i.e. } 4^2 = a_3 \text{ or } a_3 = 16, \text{ etc}$$

Thus, $a_1 = 2, a_2 = 4, a_3 = 16, \text{ etc}$

