Temple of Learning
Your Ambition, Our Inspiration

Number System
Extra Questions

1. Three mangoes, four guavas, and five watermelons cost Rs. 750. Ten watermelons, six mangoes and 9 guavas Cost Rs. 1580. What is the cost of six mangoes, ten watermelons and 4 guavas?

A. Rs. 1280
B. Rs. 1180
C. Rs. 1080
D. Can't be determined

Answer: Option B

Solution:

According to the question,

$3M + 4G + 5W = 750$ ------- (1)

$6M + 9G + 10W = 1580$ -------- (2)

$6M + 4G + 10W = x$ (let) ------- (3)

On equation (1) × 2 - equation (2), we get

$G = 80$

On equation (2) - Equation (3), we get

$5G = 1580 - x$

Putting, $G = 80$, We get

$x = 1180$

2. The H.C.F. of two numbers is 23 and the other two factors of their L.C.M. are 13 and 14. The larger of the two numbers is:

A.276
B.299
C.322
D.345

Answer: Option **C**

Explanation:

Clearly, the numbers are (23 x 13) and (23 x 14).

Larger number = (23 x 14) = 322.

3. Six bells commence tolling together and toll at intervals of 2, 4, 6, 8 10 and 12 seconds respectively. In 30 minutes, how many times do they toll together ?

A.4
B.10
C.15
D.16

Answer: Option **D**

Explanation:

L.C.M. of 2, 4, 6, 8, 10, 12 is 120.

So, the bells will toll together after every 120 seconds(2 minutes).

In 30 minutes, they will toll together $\frac{30}{2} + 1 = 16$ times.

4. The sum of two numbers is 156 and their HCF is 13. The numbers of such number pairs is

A. 2
B. 5
C. 4
D. 3

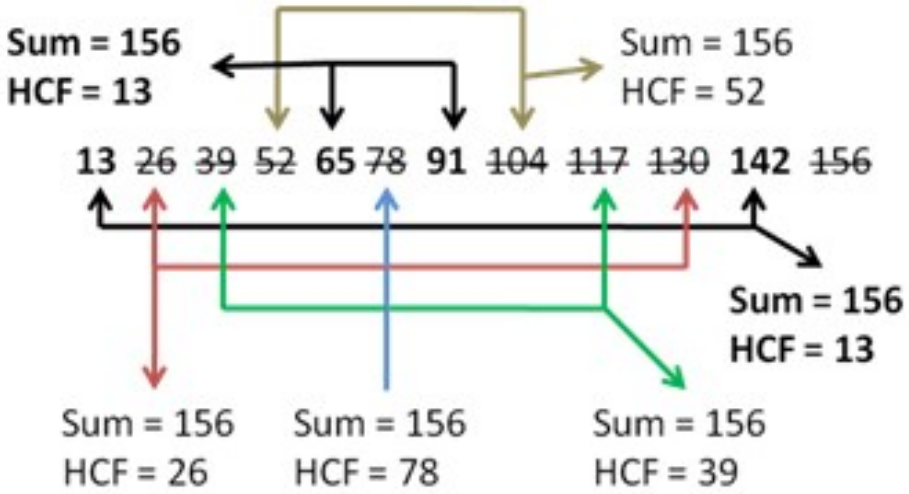
ANSWER: 2

Explanation:

The solution might look difficult but it very easy to understand and solve

Just observe the image carefully

Highest Common Factor (HCF) is 13, that means the **numbers are multiples of 13**.
We need sum of numbers to be 156.
In such sums, first write multiples of 13 till 156



Thus, there are **two such pairs, (13, 142) and (65,91)**

5. The L.C.M. of two numbers is 14560 and their H.C.F. is 13. If one of them is 416, the other is

A. 460
B. 455
C. 450
D. 445

ANSWER: 455
Explanation:

Tip:
If A and B are two numbers,
A x B = HCF of A and B x LCM of A and B

$\therefore 416 \times \text{Number} = 14560 \times 13$

$\therefore$ **Number = 455**

6. The greatest length of the scale that can measure exactly 30 cm, 90 cm, 1 m 20 cm and 1 m 35 cm lengths is

A. 5 cm
B. 10 cm
C. 15cm
D. 30 cm

ANSWER: 15cm
Explanation:

Here we need to exactly measure these lengths.

Also, 1m = 100 cm; ∴ 1m 35cm = 135cm **and** 1m 20cm = 120cm

Option 1 – **5 cm can measure** 30cm, 90cm, 1m 20cm and 1m 35 cm

Option 2 – **10 cm cannot measure** 1m 35 cm i.e. 135cm

Option 3 –15 cm can measure 30cm, 90cm, 1m 20cm and 1m 35 cm

Option 4 –**30 cm cannot measure** 1m 35 cm

Since we want greatest length, 15 > 5

∴ Answer = 15cm

7. The value of 25.25 – 23.23 + 24.24 is

A. 26
B. 26.26
C. 2.2
D. -22.22

ANSWER: 26.26
Explanation:

In such cases, there is no need to add and subtract directly
First add or subtract the numbers before decimal point.
So 25-23+24 = 2 + 24 = **26**
Now add or subtract the numbers after decimal point.
25-23+24 = 26 = 0.26 (since it is decimal)
Now add these numbers
Answer = 26+0.26 = **26.26**

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8. A*B implies A^2+B^2. What is the value of 6*(2*4)?

A. 999
B. 3616
C. 324
D. 436

ANSWER: 436
Explanation:

Here, A*B does not mean multiplication.
It only signifies the expression A^2+B^2
So,

$$
\begin{aligned}
&6*(2*4)\\
&= 6*(2^2 + 4^2)\\
&= 6*(4 + 16)\\
&= 6*20\\
&= 6^2 + 20^2\\
&= 36 + 400\\
&= \mathbf{436}
\end{aligned}
$$

9. The number of numbers from 1 to 200 which are divisible by neither 3 nor 7 is :

A.115

B.106

C.103

D.less than 100

Answer: Option A

Solution:

The required number = Number of numbers, which are (divisible by 3 + divisible by 7 - divisible by 21)

Number of number divisible by 3,

$$= \frac{198 - 3}{3} + 1$$

$$= 66$$

Number of number divisible by 7

$$= \frac{196 - 7}{7} + 1$$

$$= 28$$

Number of number divisible by 21,

$$= \frac{189 - 21}{21} + 1$$

$$= 9$$

Thus, the divisible value

$$= 66 + 28 - 9$$

$$= 85$$

Thus, number of numbers which are not divisible by 3 or 7

$$= 200 - 85$$

$$= 115$$

10. The sum of 100 terms of the series 1 - 3 + 5 - 7 + 9 - 11 ..... is:

A.100
B. -200
C.200
D. -100

Answer: Option D

Solution:

1 - 3 + 5 - 7 + 9 - 11 ..... + 197 - 199

= (- 2) + (-2) + (-2) + ... + (-2) (50 times)

= 50 × (-2) = -100

11. The number of two digit prime numbers which remain prime even inverting the position of its digits is:

A.4
B.5
C.9
D.10

Answer: Option C

Solution:

These numbers are 11, 13, 31, 17, 71, 37, 73, 79, 97.

12. Half way through the journey from Delhi to Lahore Atalji began to look out of the window of the Samjhauta Express and continued it until the distance which was remained to cover was half of what he has covered. Now at this time how much distance he has to cover?

A.1 / 2
B.1 / 4
C.1 / 3
D.1 / 6

Answer: Option C

Solution:

Since, he has covered twice the distance which yet he has to cover. It means he has covered $\frac{2}{3}$ of the whole journey and remaining journey is $\frac{1}{3}$ rd.

13. To write all the page numbers of a book, exactly 136 times digit 1 has been used. Find the number of pages in the book.

A.190
B.195
C.210
D.220

Answer: **Option B**

Solution:

From 1- 99 digit 1 is used 20 times. And From 100 - 199, 1 is used 120 times

So, from 1 to 199, 1 is used,

20 + 120 = 140 times

We need 136.So leave 199, 198, 197 and 196

Required pages = 195

14. If $x + y + z = 0$, then $x^3 + y^3 + z^3$ is equal to :

A.0
B.3xyz
C. xy+yz+zx / xyz
D. xyz(xy + yz + zx)

Answer: Option B

Solution:

Given,

$x + y + z = 0$

Cubing both side,

$(x + y + z)^3 = 0$

$x^3 + y^3 + z^3 - 3xyz = 0$ **[using formula]**

$x^3 + y^3 + z^3 = 3xyz$

15. The number of prime factors in the expressions $6^4 \times 8^6 \times 10^8 \times 12^{10}$ is:

A.80
B.64
C.72
D.48

Answer: Option C

Solution:

$6^4 \times 8^6 \times 10^8 \times 12^{10}$

$= (2 \times 3)^4 \times (2^3)^6 \times (2 \times 5)^8 \times (2^2 \times 3)^{10}$

$= 2^4 \times 3^4 \times 2^{18} \times 2^8 \times 5^8 \times 2^{20} \times 3^{10}$

$= 2^{50} \times 3^{14} \times 5^8$

Thus, the total prime factors,

$= 50 + 14 + 8$ **[By adding maximum power of prime factors.]**

$= 72$

16. A man sells chocolates which are in the boxes. Only either full box or half a box of chocolates can be purchased from him. A customer comes and buys half the number of boxes which the seller had plus half box more. A second customer comes and purchases half the remaining number of boxes plus half a box. After this the seller is left with no chocolate boxes. How many chocolate boxes the seller had initially?

A.2
B.3
C.4
D.3.5

Answer: Option B

Solution:

The best way to go through the options

Let there are initially 3 boxes then,

1st customer gets = $\frac{3}{2} + \frac{1}{2} = 2$

Remaining boxes = 3 - 2 = 1

2nd customer = $\frac{1}{2} + \frac{1}{2} = 1$

So, option B is correct.

17. A gardener plants his garden with 5550 trees and arranged them so that there is one plant more per row as there are rows then number of trees in a row is:

A.56
B.74
C.76
D.75

Answer: Option D

Solution:

Let there be n rows, then number of trees in each row = (n + 1)

Thus, total number of trees,

$n \times (n + 1) = 5550$

Now, at this moment this problem can be solved in two ways. First by finding the roots of quadratic equation. Second, by using the values from options.

$74 \times 75 = 5550$

i.e. $(n + 1) = 75$

18. The sum of two numbers is 18. The greatest product of these two number can be:

A.17

B.81

C.80

D.Can't be determined

Answer: Option B

Solution:

$a + b = 18$

So, maximum of $(a \times b)$ will be only when $a = b$

Thus, $a = b = 9$

Maximum of $(a \times b) = 9 \times 9 = 81$.

19. x is five digit number. The digit in ten thousands place is 1. the number formed by its digits in units and ten places is divisible by 4. The sum of all the digits is divisible by 3. If 5 and 7 also divide x, then x will be.

A.14020

B.12060

C.10020

D.10080

Answer: **Option D**

Solution:

Let the digits of x be

x = abcde

According to the question,

x = 1bcde **[Given ten thousands place is 1.]**

Now we can check the options as given that the sum of the all digit is divisible by 3.

10080 is the only number given in the option which satisfies all the given conditions.

20. A number when divided by 56 leaves reminder of 8, but when the same number is divided by 7, it will leave the remainder :

A.3
B.2
C.1
D.4

Answer: Option C

Solution:

When the number is divided by 56 it gives a remainder of 8,

The number = 56N + 8 (56N is divisible by 56)

When same number is divided by 7 it will give remainder 1