Number System Questions

MCQ Question 1

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If we add two irrational numbers the resulting number

1. Is always an rational number
2. Is always an irrational number
3. May be a rational or an irrational number
4. Always an integer

Answer (Detailed Solution Below)

Option 3 : May be a rational or an irrational number

Win over the concepts of Number System and get a step ahead with the preparations for Mathematics with Testbook.

Number System MCQ Question 1 Detailed Solution

Concept:

- **Rational numbers** are those numbers that show the ratio of numbers or the number which we get after dividing it with any two integers.
- **Irrational numbers** are those numbers that we can not represent in the form of simple fractions a/b, and b is not equal to zero.
- When we add any two rational numbers then their sum will always remain rational.
- But if we add an irrational number with a rational number then the sum will always be an irrational number.

Explanation:

Case:1 Take two irrational numbers π and 1 - π

⇒ Sum = π +1 - π = 1

Which is a rational number.

Case:2 Take two irrational numbers π and √2

⇒ Sum = π + √2

Which is an irrational number.

Hence, a sum of two irrational numbers may be a rational or an irrational number.

MCQ Question 2 View this Question Online >

Find the number of factors of 240.

1. 20
2. 21
3. 22
4. 23

Answer (Detailed Solution Below)

Option 1 : 20

Number System MCQ Question 2 Detailed Solution

Given:

Factor of = 240

Formula used:

N = (a + 1) (b + 1) (c +1) where X, Y and Z are the prime numbers and a, b and c are their respective powers

Calculations:

$\Rightarrow 240 = 2^4 \times 3^1 \times 5^1$

⇒ Number of factors = (4 + 1) (1 + 1) (1 +)

⇒ Number of factors = 5 × 2 × 2

⇒ Number of factors = 20

∴ Number of factors is 20.

MCQ Question 3

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Find the smallest 4 digit number which when divided by 28, 36, 54 gives a remainder of 7 in each case.

1. 1619
2. 1520
3. 1620
4. 1519

Answer (Detailed Solution Below)

Option 4 : 1519

Number System MCQ Question 3 Detailed Solution

Given:

The smallest 4 digit number then divide by 28, 36, 54 gives a remainder as 7.

Calculation:

LCM of (28,36,54) + 7 will be the number that we have to find

LCM of (28,36,54) will be

28 = 4 × 7

36 = 4 × 9

54 = 6 × 9

LCM will be = 9 × 4 × 3 × 7 = 756

But we have to find the smallest 4 digit number

⇒ 756 × 2 = 1512 + 7

∴ The smallest number is 1519.

MCQ Question 4 View this Question Online >

The decimal number 1.23657657657657 ..... is equal to the rational number

1. 123/99
2. 1235/9990
3. 123657/100000
4. 123534/99900

Answer (Detailed Solution Below)

Option 4 : 123534/99900

Number System MCQ Question 4 Detailed Solution

CONCEPT :

For any nonterminating decimal value having x digits repeating to change it into a rational number

For any nonterminating decimal value having x digits repeating to change it into a rational number, we have to multiply that number with 10^x and again subtract the given number from it.

CALCULATION :

Let x =1.23657657657657

$\therefore$ It can be written as $x = 1.23657$ ---(A)

This number has three repeating numbers so we will multiply10^2 in equation (A)

So $100x = 123.657$ ---(1)

Again Multiply 10^5 in equation (A)

$\Rightarrow 100000x = 123657.657$ ---(2)

Subtract equation 1 from equation 2

$\Rightarrow$ 99900x = 123534

$\therefore x = \frac{123534}{99900}$

MCQ Question 5 View this Question Online >

There is a digit at the 10th place of 6n, in which n is a natural number that is greater than 1, it can be:

1. 1, 2, 3, 4, 5
2. 1, 3, 5, 7, 9
3. 1, 2, 6, 8, 9
4. 1, 3, 5, 8, 9

Answer (Detailed Solution Below)

Option 1 : 1, 2, 3, 4, 5

Number System MCQ Question 5 Detailed Solution

Given:

There is a digit at the 10th place of 6n.

Where n is a natural number that is greater than 1.

Calculation:

Let be n= 2, ,3, 4, 5,...

⇒ 6 × 2 = 12 = 1

⇒ 6 × 3 = 18 = 1

⇒ 6 × 4 = 24 = 2

⇒ 6 × 5 = 30 = 3

⇒ 6 × 6 = 36 = 3

⇒ 6 × 7 = 42 = 4

⇒ 6 × 8 = 48 = 4

⇒ 6 × 9 = 54 = 5

∴ It can be 1, 2, 3, 4, 5.

MCQ Question 6 View this Question Online >

What is the sum of digits of the least number which when divided by 21, 28, 30 and 35 leaves the same remainder 10 in each case but is divisible by 17?

1. 11

2. 13

3. 14

4. 10

Answer (Detailed Solution Below)

Option 2 : 13

Number System MCQ Question 6 Detailed Solution

Given:-

Least number when divided by 21, 28, 30, and 35 leaves 10 as a remainder in each case

Concept

When a number divides by certain numbers and leaves same remainder in each case then their LCM also divisibly by that number

CALCULATION:-

On Taking L.C.M of 21, 28, 30, and 35 = 420

Least number 420k + 10 is divisible by 17 = 420 × 2 + 10 = 850

Least number which when divided by 21, 28, 30 , and 35 leaves 10

as a remainder in each case but divisible by 17 = 850

∴Sum of digits of this least number = 8 + 5 + 0 = 13

MCQ Question 7 View this Question Online >

Find the value of 9996 × 10004

1. 99999984
2. 99999804
3. 99999914
4. 99999964

Answer (Detailed Solution Below)

Option 1 : 99999984

Number System MCQ Question 7 Detailed Solution

Concept Used:

In this type of question, the value of a given product can be easily calculated by using the formula given below

Formula Used:

$(a + b) \times (a - b) = (a^2 - b^2)$, where 'a' and 'b' are real number.

Calculation:

The given expression is 9996 × 10004.

Using the above formulae, we have a = 1000; b = 4

$\Rightarrow (10000 - 4) \times (10000 + 4)$

$\Rightarrow (10000^2 - 4^2)$

$\Rightarrow (100000000 - 16)$

$\Rightarrow 99999984$

MCQ Question 8

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If a real number 1.18181818.... is expressed as a/b, then a - b is

1. 1
2. 2
3. 3
4. 4

Answer (Detailed Solution Below)

Option 2 : 2

Number System MCQ Question 8 Detailed Solution

Calculation:

Given real number is 1.181818....

Let x = 1.18181818..... as two digits are repeating, lets multiply x by 100,

⇒ 100x = 118.181818....

⇒ 100x – x = 118.181818.... – 1.181818...

⇒ 99x = 117

⇒ x = 13/11

⇒ a = 13, b = 11

⇒ **a - b = 2**

MCQ Question 9

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What is the least perfect square that is a multiple of 7, 11 and 12?

1. 45000
2. 853776
3. 213444
4. 8100

Answer (Detailed Solution Below)

Option 3 : 213444

Number System MCQ Question 9 Detailed Solution

Given:

The numbers = 7, 11, 12

Concept:

LCM = The LCM of the numbers is the smallest number that is the multiple of every one of the numbers

Calculation:

Let us assume the least perfect square be X

$\Rightarrow 7 = 7 \times 1$

$\Rightarrow 11 = 11 \times 1$

$\Rightarrow 12 = 2^2 \times 3$

$\Rightarrow$ The LCM of (7, 11, 12) = $2^2 \times 3 \times 11 \times 7$

$\Rightarrow$ The least perfect square = $2^2 \times 3^2 \times 11^2 \times 7^2 = 213444$

$\therefore$ The required result will be 213444.

MCQ Question 10

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If the three numbers are added in pairs , the sum is equal to 10, 16, 24. What is the difference b/w third and first number?

1. 9
2. 6
3. 5
4. 4

Answer (Detailed Solution Below)

Option 2 : 6

Number System MCQ Question 10 Detailed Solution

Given:

Sum s are = 10, 16, and 24

Calculation:

Let, the numbers are a, b and c

According to the question,

⇒ a + b = 10

⇒ b + c = 16

⇒ c + a = 24

From above question,

⇒ 2(a + b + c) = 50

⇒ (a + b + c) = 25

Value of a = 25 − (b + c) = 25 − 16 = 9

Value of c = 25 − (a + b) = 25 − 10 = 15

Required difference = (15 − 9) = 6

∴ Difference is 6