Number Series - Logical Reasoning Aptitude Questions and Answer

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Number Series is a widely asked topic in the Logical Reasoning section of competitive examinations held in India. In these types of questions, there will be a series of numbers given, along with a blank to be filled out. You are given the task of finding out the answer to the blank by figuring out the pattern between the numbers, their predecessor, and their successor. It may appear to be a simple task, but figuring out the logic behind the pattern is tricky.

To prepare well for such examinations, we have given questions below so that the candidates can practice them and score well. Along with questions the article contains different ways to approach a question of number series. So, start practicing the questions to perform well in competitive exams.

➢ Check **Quantitative Aptitude**

Important Patterns of Number Series:

1. Series with an increasing difference (most commonly asked)
2. Series with a constant difference (the difference will be the same)
3. Series with decreasing difference (the difference will be decreasing)
4. Perfect squares and cubes of numbers' series (concept of squares and cubes will be there, either directly or indirectly)
5. Miscellaneous series(which may consist of different operations

1. *The Easiest way to approach number series questions is to observe the difference between the various terms. Here are some methods and tips you can use to solve number series questions:*
2. *If you observe carefully a constant difference between the different numbers, it means that the question belongs to the series with a constant degree category.*
3. *If you observed carefully the difference between the various numbers it is either increasing or decreasing, then the question belongs to either the series with an increasing difference or the series with decreasing difference respectively.*
4. *In case, you are not able to spot an increasing or decreasing difference between the numbers, try to divide the 2nd term of the series with the first, the 2nd term with the 3rd term and so on. If the answer to the constant division comes as the same number, then this question belongs to the product series.*
5. *In case, none of the above approach works, you can write every term of the question as to the multiplication of 2 factors and try to spot a pattern between the terms.*
6. *If you are not able to spot a pattern and the difference between the terms is decreasing or increasing at an accelerated rate, you can try for the square/cube series.*

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Solved Examples on Number Series

Find the missing term.

Q1. Given a Series 2, 5, 12.5, ?, 78.125, 195.3125
Find what number would come in place of the question mark(?).

c) 32.50

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d) 21.00

Answer : *(a) 31.25*

Explanation

If you observe the pattern, then you can see

2 × 2.5 = 5
5 × 2.5 = 12.5
12.5 × 2.5 = 31.25
31.25 × 2.5 = 78.125
78.125 × 2.5 = 195.3125

Hence, the correct answer is 31.25

Q2. Given a Series 50, 45, 40, 35, 30, ?

Find what number would come in place of the question mark(?).

a) 28

b) 15

c) 25

d) 20

If you observe the pattern, then you will see, it's nothing but constant difference series.

50 - 5 = 45
45 - 5 = 40
40 - 5 = 35
35 - 5 = 30
30 - 5 = 25

Hence, the correct answer is 25.

Q3. Given a Series -10, -8, 6, 40, 102, ?

Find what number would come in place of the question mark(?).

a) 105

b) 200

c) 216

d) 129

Answer : *(b) 200*

Explanation:

Observing patterns carefully you will find that this question belongs to the category of square series.

$-10 + (2^2 - 2) = -8$
$-8 + (4^2 - 2) = 6$
$6 + (6^2 - 2) = 40$
$40 + (8^2 - 2) = 102$
$102 + (10^2 - 2) = 200$

Hence, the correct answer is 200.

Q4. Given a Series 25, 49, 121, 169,?

Find what number would come in place of the question mark(?).

a) 225

b) 256

Answer: *(c) 289*

Explanation:-

Observing patterns carefully, you will observe that, this series is based on two concepts one is squares and the other is a prime number.

$5^2 = 25$
$7^2 = 49$
$11^2 = 121$
$13^2 = 169$
$17^2 = 289$

Hence, the correct answer is 289

Q5. Given a Series 1, 30, 5, 26, 9, 22, 13, 18, ?

Find what number would come in place of the question mark(?).

a) 17

b) 22

c) 28

d) 19

Answer : *(a) 17*

Explanation:-

Observing the pattern carefully, you will observe that, this series consist of 2 different series.

Let me point out them for ease of understanding ---
1 + 4 = 5
5 + 4 = 9
9 + 4 = 13
13+4= 17.

Similarly,

30 - 4 = 26
26 - 4 = 22
22 - 4 =18

Q6. Find the number that will come in the place of the question mark in the given series 4, 18, ?, 100, 180, 294, 448.

a) 62

b) 86

c) 38

d) 48

Answer : *(d) 48*

Explanation:-
Observing pattern carefully you will find that this question belongs to the category of squares and cube series.

$2^3 - 2^2 = 8 - 4 = 4$
$3^3 - 3^2 = 27 - 9 = 18$
$4^3 - 4^2 = 64 - 16 = 48$
$5^3 - 5^2 = 125 - 25 = 100$
$6^3 - 6^2 = 216 - 36 = 180$
$7^3 - 7^2 = 343 - 49 = 294$
$8^3 - 8^2 = 512 - 64 = 448$

Hence 48 would be our answer, as it is the number that would come in place of a question mark.

Q7. Find the number that will come in the place of the question mark in the given series 11, 12, 15, 20, 27, ?

a) 36

b) 35

c) 38

d) 41

Answer : *(a) 36*

Explanation:-

11 + 1 = 12
12 + 3 = 15
15 + 5 = 20
20 + 7 = 27
27 + 9 = 36.

Hence, the missing number would be 36.

Q8. Find the number that will come in the place of the question mark in the given series 14, 25, 47, 91, 179, ?.

a) 255

b) 321

c) 355

d) 211

Answer : *(c) 355*

Explanation:-

observing the pattern we get that the difference between consecutive terms is being doubled every time.

25 – 14 = 11
47 – 25 = 22
91 – 47 = 44
179 – 91 = 88

So, if 88 is doubled, we get 176.

Hence, 179 + 176 = 355
Hence the missing term is 355.

Q9. Find the number that will come in the place of the question mark in the given series 4, 6, 9, 14, 21, ?.

a) 28

b) 32

Answer : *(b) 32*

Explanation:-

Observing the pattern, one can easily come to know that, the difference between consecutive terms is a prime number.

4 + 2 = 6
6 + 3 = 9
9 + 5 = 14
14 + 7 = 21
21 + 11 = 32.

Hence, the missing number will be 32.

Q10. Find the number which would come in place of question marks 3, 4, 7, 8, 11, 12, ?, ?.

a) 13, 14

b) 18, 20

c) 15, 16

d) 19, 20

Answer : *(c) 15, 16*

Explanation:-

This is a Hybrid series, which is formed from the combination of two series i.e 3,7,11,.... and 4,8, 12.
So, the difference between every term in different series is 4. hence 11 + 4 would be the next term i.e 15
and 12 + 4 =16 is the further next term.

Q11. Find the number which is wrong in the given series 2, 3, 12, 37, 86, 166, 288.

a) 2

b) 12

Answer : *(d) 166*

Explanation:-

Observing the pattern carefully, every term is formed from a sum of (the previous term and consecutive odd number squares).

$2 + 1^2 = 2 + 1 = 3$
$3 + 3^2 = 3 + 9 = 12$
$12 + 5^2 = 12 + 25 = 37$
$37 + 7^2 = 37 + 49 = 86$
$86 + 9^2 = 86 + 81 = 167$
$167 + 11^2 = 167 + 121 = 288.$

Clearly, we can see that 167 should be there instead of 166. Hence 166 is the wrong term.

Q12. Find the number which would come in place of question mark 81 : 101 :: 121 : ? .

a) 141

b) 143

c) 170

d) 145

Answer : *(d) 145*

Explanation:-

Here 81 is nothing but 9^2 and 101 is nothing but $(9 + 1)^2 + 1$

So, likewise this
121 is nothing but 11^2
so ,next term will be $(11 + 1)^2 + 1 = 145$

Q13. Find the number which would come in place of question mark 11 : 121 :: 15 : ?

a) 169

d) 256

Answer : *(c) 225*

Explanation:-

Observing pattern we get,
Here, $11^2 = 121$
So, $15^2 = 225$

So, the missing number is 225.

Q14. Find the number which would come in place of question mark 2, 4, 8, 10, 14, ?.

a) 16

b) 18

c) 24

d) 20

Answer : *(a) 16*

Explanation:-

This series is an alternating series, where a pattern following is +2, +4, +2, +4, and so on

2 + 2 = 4
4 + 4 = 8
8 + 2 = 10
10 + 4 = 14
14 + 2 = 16

Hence the next term will be 16.

Q15. Find the number which would come in place of question mark 1, 8, 9, 64, ?.

a) 27

d) 64

Answer : *(c) 25*

Explanation:-

Observing carefully one can come to know that this series is nothing but squares and cubes of numbers starting from 1

$1^2 = 1$
$2^3 = 8$
$3^2 = 9$
$4^3 = 64$
$5^2 = 25$

Hence, 25 will be the answer.

Q16. Find the number which would come in place of question mark 6, 11, 18, 27, ?.

a) 33

b) 40

c) 38

d) 81

Answer : *(c) 38*

Explanation:-

Here, every term is squares from (starting from 2) with the addition of 2.

$2^2 + 2 = 6$
$3^2 + 2 = 11$
$4^2 + 2 = 18$
$5^2 + 2 = 27$
$6^2 + 2 = 38$

Q17. Find the number which would come in place of question mark 3, 4.5, 9, ?

c) 13.5

d) 27

Answer : *(a) 22.5*

Explanation:-

This series is a product based, below is the pattern for finding the next term

3 × 1 = 3
3 × 1.5 = 4.5
4.5 × 2 = 9
9 × 2.5 = 22.5

Hence, 22.5 will be our answer.

Q18. Find the number which would come in place of question mark 3, 5, 7, 9, 11, ?,

a) 13

b) 17

c) 19

d) 12

Answer : *(a) 13*

Explanation:-

It can be seen in 2 ways,

1. *it is simple just a difference of 2 in every consecutive term that is --*

3 + 2 = 5
5 + 2 = 7
7 + 2 = 9
9 + 2 = 11
11 + 2 = 13. Hence 13 will be the answer.

2. It can also be seen as a difference of squares of numbers -

5^2 - 4^2 = 9
6^2 - 5^2 = 11
*7^2 - 6^2 = **1**3. Hence 13, will be the answer.*

Q19. Find the number which would come in place of question mark 1, 7, 37, 187, 937, ?.

a) 4687

b) 1823

c) 5687

d) 5000

Answer : *(a) 4687*

Explanation:-

Here, every term is multiplied by 5, and adding 2 to get the next term of the series.

1 × 5 + 2 = 7
7 × 5 + 2 = 37
37 × 5 + 2 = 187
187 × 5 + 2 = 937
937 × 5 + 2 = 4687

Hence, 4867 will be our answer.

Q20. Find the number which would come in place of question mark 1, 5, 19, 81, ?

a) 405

b) 411

c) 400

d) 395

Answer : *(b) 411*

1 × 2 + 3 = 5
5 × 3 + 4 = 19
19 × 4 + 5 = 81
81 × 5 + 6 = 411

Hence, 411 will be our answer.

Practice Questions on Number Series

Question 1. What comes next in the series? 2, 4, 8, 16, 32, __

Question 2. Complete the sequence: 1, 4, 9, 16, 25, __

Question 3. Find the next number: 3, 6, 11, 18, 27, __

Question 4. What's the missing number? 1, 2, 4, 8, 16, 32, __

Question 5. Continue the pattern: 1, 3, 6, 10, 15, __

Question 6. What's next? 2, 3, 5, 8, 13, __

Question 7. Fill in the blank: 1, 1, 2, 3, 5, 8, __

Question 8. What number follows? 0, 1, 1, 2, 3, 5, __

Question 9. Complete the series: 3, 6, 12, 24, 48, __

Question 10. What's the next number? 2, 6, 12, 20, 30, __

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