



DEPARTMENT OF EMPLOYMENT AND TRAINING

TNPSC GROUP II A MAINS - UNIT II

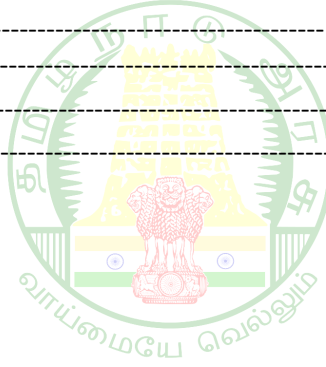
Course : TNPSC Group II A Mains Material

Subject : General Intelligence and Reasoning

Topic : Inserting the Missing character

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Director,
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Introduction to Inserting the Missing character

Box-type missing number problems are a common and interesting type of question found in competitive exams, especially in sections related to quantitative aptitude and logical reasoning. These problems typically involve a grid or a box with some numbers missing. Your task is to identify the correct missing number based on the pattern or relationship that governs the numbers in the box.

The numbers in the grid can be arranged in rows, columns, diagonals, or even across the entire grid. The relationships that govern the numbers can be simple or complex, and may involve arithmetic operations such as addition, subtraction, multiplication, or division. They may also involve patterns based on powers, sequences, or even geometric relationships.

Variety Question

1. Which number will replace the question mark (?) in the following series?

102, 110, 126, 150, 182, ?

a) 220

b) 246

c) 222

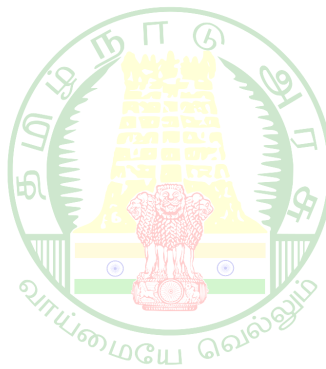
d) 214

Ans: c

Exp:

+8 +16 +24 +32 +40

102 110 126 150 182 222



2. Find the missing number from the below options.

12	7	95
14	8	132
16	9	?

a) 175

b) 164

c) 185

d) 154

Ans: a

Exp:

$(12 + 7) \times 5 = 95$

$$(14 + 8) \times 6 = 132$$

$$(16 + 9) \times 7 = 175$$

Ans: c

Exp:

$$(19 + 20) \times 2 = 78$$

$$(25 + 47) \times 2 = 144$$

$$(16 + 13) \times 2 = 58$$

4. Find the missing number from the options given below.

17	22	37
23	28	43
16	?	36

a) 34

b) 32

c) 21

d) 12

Ans: c

Exp:

$$17 + 5 = 22, 22 + 15 = 37$$

$$23 + 5 = 28, 28 + 15 = 43$$

$$16 + 5 = 21, 21 + 15 = 36$$

4. Find the missing number from the given options.

4	3	19
6	4	40
9	9	?

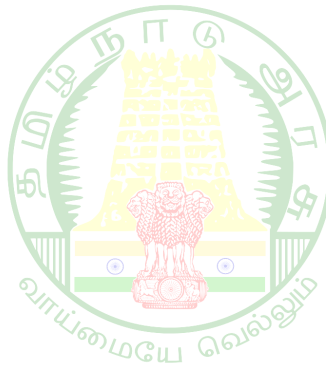
a) 90

b) 80

c) 100

d) 72

Ans: a



Exp:

In 1st row: $4^2 + 3 = 16 + 3 = 19$ (3rd number)

In 2nd row: $6^2 + 4 = 36 + 4 = 40$ (3rd number)

Similarly,

In 3rd row: $9^2 + 9 = 81 + 9 = 90$

5. Find the missing number from the given options.

6	24	96
7	28	112
13	52	?

a) 208

b) 232

c) 116

d) 142

Ans: a

Exp:

In 1st row – $6 \times 4 = 24$ & $24 \times 4 = 96$

In 2nd row – $7 \times 4 = 28$ & $28 \times 4 = 112$

In 3rd row – $13 \times 4 = 52$ & $52 \times 4 = 208$

6. Find the missing number from the given options.

50	31	9
43	11	6
42	21	?

a) 5

b) 9

c) 6

d) 7

Ans: d

Exp:

In 1st row: $50 + 31 = 81 = 9 \times 9$

In 2nd row: $43 + 11 = 54 = 9 \times 6$

In 3rd row: $42 + 21 = 63 = 9 \times 7$

7. Find the missing number from the below options.

4	6	7
5	3	?
41	45	58

a) 9

b) 51

c) 12

d) 3

Ans: d

Exp:

Logic:

$$4^2 + 5^2 = 16 + 25 = 41$$

$$6^2 + 3^2 = 36 + 9 = 45$$

Similarly,

$$7^2 + (?)^2 \rightarrow 3^2 = 49 + 9 = 58.$$



8. Find the missing number from the below options.

9	25	49
6	11	13
9	16	?

a) 19

b) 20

c) 21

d) 18

Ans: b

Exp:

Pattern is:

$$\text{In 1}^{\text{st}} \text{ column: } 9 = 3^2 = 3 + 6 = 9$$

$$\text{In 2}^{\text{nd}} \text{ column: } 25 = 5^2 = 5 + 11 = 16$$

In 3rd column: $49 = 7^2 = 7 + 13 = 20$

9. Select the missing number from the given options.

8	27	?
7	2	3
9	5	7

a) 64

b) 16

c) 25

d) 36

Ans: a

Exp:

$$9 - 7 = 2^3 = 8$$

$$5 - 2 = 3^3 = 27$$

$$7 - 3 = 4^3 = 64$$

10. Select the missing number from the given options.

64	49	?
12	17	4
20	24	8

a) 12

b) 16

c) 36

d) 25

Ans: b

Exp:

$$\sqrt{64} + 12 = 20$$

$$\sqrt{49} + 17 = 24$$

$$\sqrt{16} + 4 = 8$$

11. Select the missing number from the given options.



18	28	50
17	13	11
26	27	?

a) 61

b) 30

c) 29

d) 36

Ans: d

Exp:

The pattern followed (column-wise) :

(First term \div 2) + Second term = Third term

In first column,

$$26 = (18 \div 2) + 17 = 9 + 17 = 26$$

In second column,

$$27 = (28 \div 2) + 13 = 14 + 13 = 27$$

Similarly,

In third column,

$$? = (50 \div 2) + 11 = 25 + 11 = 36$$

 \therefore The missing number (?) = 36

Thus, the missing number '36' in option d is correct.

12. Select the option that is related to the third number in the same way as the second number is related to the first number.

1 : 2 :: 5 : ?

a) 120

b) 129

c) 128

d) 130

Ans: d

Exp:

The pattern followed is $(x : x^3 + x)$.

$$5 : 5^3 + 5 = 5 : 130$$

So the correct answer is option d.

13. Select the missing number from the given options.

7	11	14
8	12	9
113	265	?

a) 277

b) 625

c) 361

d) 281

Ans: a

Exp:

Model is

$$x^2 + y^2$$

So, the missing number will be $14^2 + 9^2 = 277$.

14. Select the missing number from the given options.

36	52	86
28	40	12
32	46	?

a) 43

b) 53

c) 49

d) 51

Ans: c

Exp:

$$\text{Model is: } \frac{x+y}{2}$$

So, answer would be $\frac{(86+12)}{2} = 49$

Practice Questions:

1. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

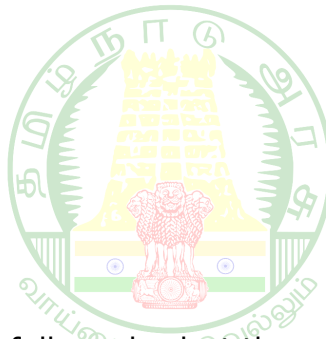
6	21	14
40	500	?
8	25	7

- a) 78
- b) 98
- c) 91
- d) 84

2. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

5	4	41
15	6	?
9	11	202

- a) 209
- b) 212
- c) 122
- d) 261



3. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

7	13	6
4	22	18
15	?	7

- a) 22
- b) 23
- c) 21
- d) 24

4. Study the given pattern carefully and select the number that can replace the question mark (?).

7	11	14
53	127	?
4	6	3

- a) 196
b) 200
c) 169
d) 199

5. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

10	3	14
49	15	68
33	19	?

- a) 28
b) 29
c) 25
d) 27

6. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

10	4	14	35
15	3	5	25
14	7	6	12
18	?	8	16

- a) 8
b) 6
c) 7
d) 9

7. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

45	37	?
18	24	36
252	296	540

- a) 55
- b) 45
- c) 50
- d) 40

8. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

23	5	110
56	9	121
49	3	?

- a) 77
- b) 111
- c) 95
- d) 113

9. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

15	3	24
21	6	30
49	5	?

- a) 98
- b) 88
- c) 92
- d) 82



Answer Key:

1.c 2.d 3.a 4.d 5. A 6.d 7.b 8.a 9. B