

## Inserting Missing Number

### Learning Objectives

- To get aware of Missing Number.
- Increasing interest about this segment of reasoning.
- Improving the general awareness.
- Increasing the word power.

### Introduction

In these types of questions different characters/numbers/letters) are arranged in a matrix with one term missing or characters are arranged in a wide range of geometrical figures. The characters in such arrangement follow a certain pattern and you are required to identify that pattern so that you can substitute the question mark (?) with a suitable character.

Such questions can be solved as series (numbers/letters) are done. No particular and specific rules are applied in such questions. Although you must keep the following tips in your mind:

#### 1. Find the missing number in the given number matrix.

4	9	2
3	?	7
8	1	6

- (a) 7  
(b) 8  
(c) 9  
(d) 5  
(e) None of these

**Answer (d)**

**Explanation:** It is a magical square starting from 1 to 9 and sum of each diagonal/ row or column is equal to 15.

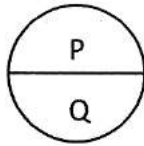
4	9	2	⇒ 15
3	⑤	7	⇒ 15
8	1	6	⇒ 15
↓	↓	↓	
15	15	15	

#### 2. What is the missing number in the given series below?

2	7	12	17	21
6	16	26	?	46

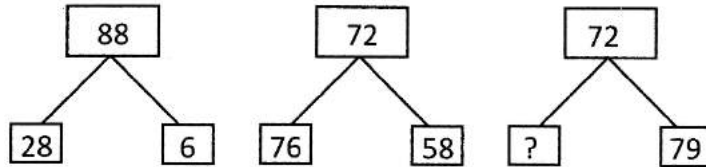
- (a) 32  
(b) 36  
(c) 42  
(d) 56  
(e) None of these

**Answer: (b)**



Explanation: Pattern followed in is  $Q = P \times 2 + 2$   
Hence, number in lower part of the fourth circle is  $17 \times 2 + 2 = 34 + 2 = 36$  ..

3. Which number will replace the question mark in the figure given below?

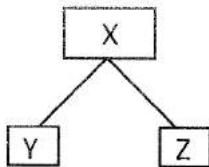


- (a) 36  
(c) 97  
(e) None of these

- (b) 58  
(d) 82

**Answer: (c)**

**Explanation:** Rule followed in each figure.



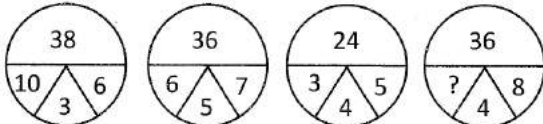
$$(Y - Z) \times 4 = X$$

Hence,  $(Y - 79) \times 4 = 72$

$$\Rightarrow Y - 79 = \frac{72}{4} = 18$$

$$\Rightarrow Y = 18 + 79 = \boxed{97}$$

4. Find the missing number in the pattern given below:



- (a) 8  
(c) 6  
(e) None of these

- (b) 7  
(d) 5

**Answer: (c)**

**Explanation:** Sum of numbers of lower portion doubles off in upper portion.

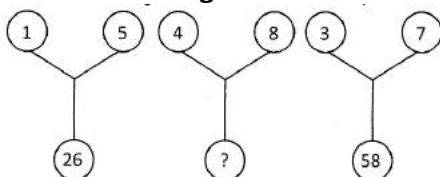
$$10 + 3 + 6 = 19 \times 2 = 38$$

$$6 + 5 + 7 = 18 \times 2 = 36$$

$$3 + 4 + 5 = 12 \times 2 = 24$$

$$4 + 8 + \boxed{6} = 18 \times 2 = 36$$

5. Find the missing numbers if certain rule, is followed in each of the given figures.



- (a) 35  
(c) 80  
(e) None of these

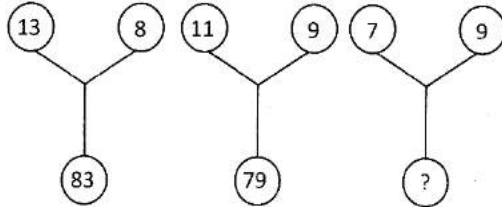
- (b) 65  
(d) 95

**Answer: (c)**

**Explanation:**

$$\left. \begin{array}{l} 1 \times 1 + 5 \times 5 \\ 1 + 25 = 26 \end{array} \right\} \quad \left. \begin{array}{l} 3 \times 3 + 7 \times 7 \\ 9 + 49 = 58 \end{array} \right\} \quad \left. \begin{array}{l} 4 \times 4 + 8 \times 8 \\ 16 + 64 = \boxed{80} \end{array} \right\}$$

**6. Find the missing number, if same rule is followed in all the three figures.**



- (a) 74  
(b) 58  
(c) 47  
(d) 36  
(e) None of these

**Answer: (c)**

**Explanation:** Following this pattern as

$$(13 \times 8) - (13 + 8) = 104 - 21 = 83.$$

$$(11 \times 9) - (11 + 9) = 99 - 20 = 79.$$

$$\text{Similarly, } (7 \times 9) - (7 + 9) = 63 - 16 = \boxed{47}$$

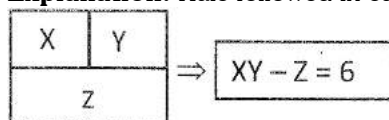
**7. Find the missing number, if same rule is followed in all three figures.**

14	9		8	17		19	7
120			138			?	

- (a) 112  
(b) 127  
(c) 138  
(d) 5  
(e) None of these

**Answer: (b)**

**Explanation:** Rule followed in each Box



$$\text{Similarly, } 19 \times 7 - \boxed{Z} = 6$$

$$\Rightarrow 133 - \boxed{Z} = 6$$

$$\Rightarrow \boxed{Z} = 133 - 6 = \boxed{127}$$

**8. Find the missing number, if a certain rule is followed row wise or column-wise.**

9	12	5
54	?	35
12	15	14

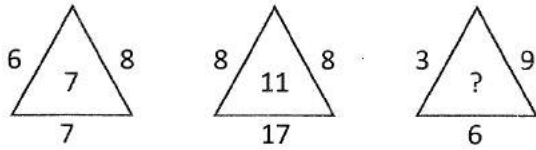
- (a) 180  
(b) 125  
(c) 90  
(d) 45  
(e) None of these

**Answer: (c)**

**Explanation:** Rule followed in the given matrix

$$\boxed{\frac{a \times c}{2} = b} \Rightarrow \frac{12 \times 15}{2} = \boxed{90}$$

9. Find the missing number, if same rule is followed in all the three figures.



- (a) 5  
(b) 6  
(c) 7  
(d) 8  
(e) None of these

**Answer: (b)**

**Explanation:**  $\boxed{\frac{a+b+c}{3} = d}$

Hence,  $\frac{3+6+9}{3} = \frac{18}{3} = \boxed{6}$ .

10. Find the missing number, if a certain rule is followed row-wise or column-wise.

1	3	5
2	4	1
5	6	3
64	?	81

- (a) 25  
(b) 36  
(c) 169  
(d) 225  
(e) None of these

**Answer: (c)**

**Explanation:**  $1+2+5=8 \Rightarrow 8 \times 8 = 64$ .

$3+4+6=13 \Rightarrow 13 \times 13 = \boxed{169}$

$5+1+3=9 \Rightarrow 9 \times 9 = 81$ .

11. Find the missing number, if a certain rule is followed row wise or column-wise.

5	6	7
8	9	4
3	2	1
42	?	29

- (a) 64  
(b) 57  
(c) 49  
(d) 36  
(e) None of these

**Answer: (b)**

**Explanation:**  $5 \times 8 + 2 = 40 + 2 = 42$ .

$6 \times 9 + 3 = 54 + 3 = \boxed{57}$

$7 \times 4 + 1 = 28 + 1 = 29$ .

12. Find the missing number, if a certain rule is followed row-wise or column-wise.

3	8	1
2	?	6
7	0	5

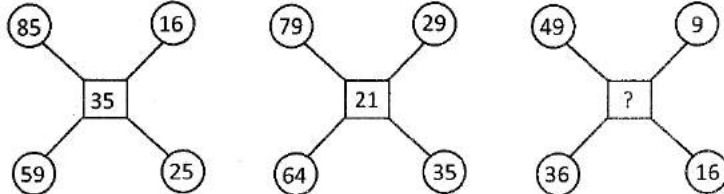
- (a) 7  
(b) 5  
(c) 3  
(d) 4  
(e) None of these

**Answer: (d)**

**Explanation:** Sum of all Row and sum of all column is equal

$$\left. \begin{array}{l} 3 + 2 + 7 = 12 \\ 1 + 6 + 5 = 12 \\ 8 + \boxed{4} + 0 = 12 \end{array} \right\} \begin{array}{l} 3 + 8 + 1 = 12 \\ 7 + 5 + 5 = 12 \\ 2 + \boxed{4} + 6 = 12 \end{array}$$

13. Find the missing number, if same rule is followed in all the three figures.



- (a) 21  
(c) 35  
(e) None of these

- (b) 20  
(d) 40

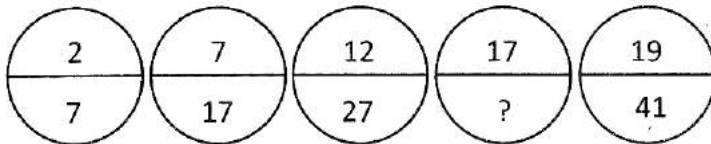
**Answer (b)**

**Explanation:**

$$(85 - 59) + (25 - 16) \quad (79 - 64) + (35 - 29) \quad (49 - 36) + (16 - 9) \\ \Rightarrow 26 + 9 = 35 \quad \Rightarrow 15 + 6 = 21 \quad \Rightarrow 13 + 7 = \boxed{20}.$$

## Commonly Asked Question

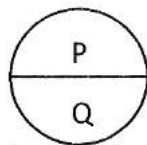
1. What is the missing number in the given series below?



- (a) 27  
(c) 47  
(e) None of these

- (b) 37  
(d) 57

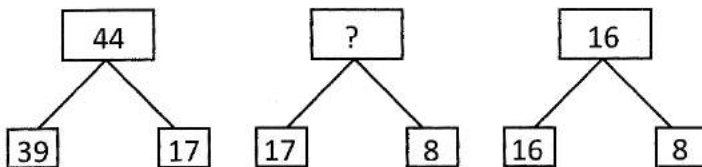
**Answer: (b)**



**Explanation:** Pattern followed in is  $Q = P \times 2 + 3$

Hence, number in lower part of the fourth circle is  $\Rightarrow 17 \times 2 + 3 = 34 + 3 = 37$ .

2. Which number will replace the question mark in the figure given below?



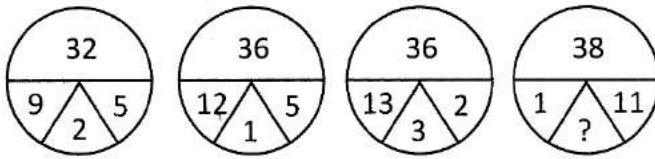
- (a) 12  
(c) 18  
(e) None of these

- (b) 17  
(d) 32

**Answer: (c)**

**Explanation:**  $39 - 17 = 22 \times 2 = 44$ ;  $17 - 8 = 9 \times 2 = \boxed{18}$ ;  $16 - 8 = 8 \times 2 = 16$ .

3. Find the missing number in the pattern given below



- (a) 5  
(b) 6  
(c) 7  
(d) 8  
(e) None of these

**Answer: (c)**

**Explanation:** Sum of numbers of lower portion doubles off in upper portion.

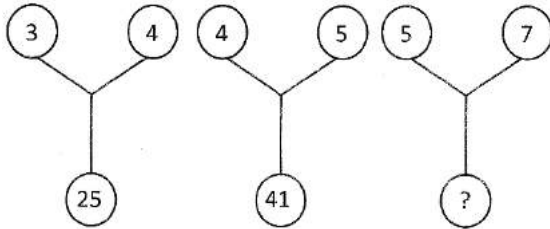
$$9 + 2 + 5 = 16 \times 2 = 32$$

$$12 + 1 + 5 = 18 \times 2 = 36$$

$$13 + 3 + 2 = 18 \times 2 = 36$$

$$1 + \boxed{7} + 11 = 2 \times 19 = 38$$

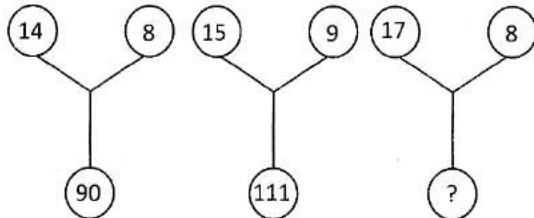
4. Find the missing number, if same rule is followed in all the three figures.



- (a) 45  
(b) 56  
(c) 64  
(d) 74  
(e) None of these

**Answer: (d)**

5. Find the missing number, if same rule is followed in all the three figures.



- (a) 90  
(b) 111  
(c) 135  
(d) 89  
(e) None of these

**Answer: (b)**

**Explanation:** Following this pattern as

$$(14 \times 8) - (14 + 8) = 112 - 22 = 90.$$

$$(15 \times 9) - (15 + 9) = 135 - 24 = 111.$$

$$\text{Similarly, } (17 \times 8) - (17 + 8) = 136 - 25 = \boxed{111}.$$