04
CHAPTER

MISSING NUMBER

Directions

Before this chapter we should read chapter "Number Series". About Chapter:- In this chapter some specific patterns are made by some numbers.

The logic is set by "Addition", "Multiplication", "Subtraction", "Divide", "Square" and "Cube" of Numbers.

- Þ These patterns are set in Different Figure like: Matrix, Circle, Triangle, Butterfly

The questions are of two types :

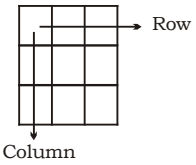
I. When Pattern set in single figure

II When Pattern set in two or more than two figures.

TYPE - I

Here we are giving some examples for type-I

\ In Matrix Þ



In this type of Figure pattern is either set in Row or in Column

Ex.

1. Find Missing number in following Matrix?

6	15	20
8	4	5
3	5	20
51	65	?

(a) 100 (b) 120

(c) 90 (d) 80

Sol. (b) In this matrix pattern is made by "Column Numbers"

In 1st Column Þ (6×8)+3 = 51

In 2nd Column Þ (15 ×4) + 5 = 65

In 3rd Column Þ (20 × 5) + 20 = **120**

Ex.2 Find Missing Number in following Matrix?

18	11	19
12	13	16
36	4	?

(a) 36 (b) 9

(c) 35 (d) 7

Sol. (b) In this Matrix Operation is made by "Column Number"

In 1st Column Þ $(18-12)^2$ Þ 36

In 2nd Column Þ $(11-13)^2$ Þ 4

In 3rd Column Þ $(19-16)^2$ Þ **9**

Ex.3 Find Missing number?

3	4	9	16
5	6	25	36
7	8	?	64

(a) 15 (b) 18

(c) 16 (d) 49

Sol. (d) In this chapter operation is made by Row Numbers

In 1st Row Þ 3 + 4 + 9 = 16

In 2nd Row Þ 5 + 6 + 2 5 = 36

In 3rd Row Þ 7 + 8 + **49** = 64

Ex.4 Find the missing number?

268	(29)	210
218	?	166

(a) 42 (b) 25

(c) 26 (d) 29

Sol. (c) Row Pattern

In 1st Row Þ $\frac{(268-210)}{2}$ =29

In 2nd Row Þ $\frac{(218-166)}{2}$

= **26**

Ex.5 Find missing number?

13	9	24
11	?	6
16	20	10

(a) 11 (b) 20

(c) 19 (d) 14

Sol. (a) Column pattern

In 1st Column Þ 13+ 11+ 16 = 40

In 3rd Column Þ 24 + 6 + 10 = 40

Similarly

In 2nd Column Þ 9 + **11** + 20 = 40

Ex.6 Find the missing number?

85	20	5
126	24	6
175	?	7

(a) 22 (b) 24

(c) 26 (d) 28

Sol. (d) Row Pattern

In 1st Row Þ (20×5) – (20 – 5) = 85

In 2nd Row Þ (24 ×6) – (24 –6) = 126

In 3rd Row Þ (**28** × 7) – (**28** – 7) = 175

Ex.7

4	5	1	2
5	6	7	6
6	9	6	4
45	92	84	?

(a) 56 (b) 48

(c) 52 (d) 45

Sol. (b) Column Pattern

In 1st Column Þ $6^2 + 5^2 - 4^2 = 45$

In 2nd Column Þ $9^2 + 6^2 - 5^2 = 92$

In 3rd Column Þ $6^2 + 7^2 - 1^2 = 84$

In 4th Column Þ $4^2 + 6^2 - 2^2$ Þ **48**

Ex.8

4	6	10
2	1	3
5	8	?

(a) 14 (b) 15

(c) 17 (d) 16

Sol. (c) In First Row ⇒ $4^2 - 6 = 10$

In 2nd Row ⇒ $2^2 - 1 = 3$

In 3rd Row ⇒ $5^2 - 8 =$ **17**

Ex.9

5	8	14
9	6	21
7	2	?

(a) 14 (b) 15

(c) 13 (d) 16

Sol. (b) In First Row ⇒ $(5 \times 2) + \frac{8}{2} = 14$

In 2nd Row ⇒ $(9 \times 2) + \frac{6}{2} = 21$

In 3rd Row ⇒ $(7 \times 2) + \frac{2}{2} =$ **15**

Ex.10

5	9	15
16	29	?
49	89	147

(a) 48 (b) 45

(c) 54 (d) 51

Sol. (a) In First column ⇒

$(5 \times 3) + 1 = 16$, $(16 \times 3) + 1 = 49$

In 2nd Column ⇒

$(9 \times 3) + 2 = 29$, $(29 \times 3) + 2 = 89$

In 3rd Column ⇒

$(15 \times 3) + 3 =$ **48**, (**48** $\times$ 3) +3 = 147

Ex.11 Find Missing Number

8	13	10
7	12	9
10	15	?

(a) 8 (b) 12

(c) 5 (d) 19

Sol. (b) In First Row

⇒ 8 $\xrightarrow{+2}$ 13 $\xrightarrow{+3}$ 10

In 2nd Row ⇒ 7 $\xrightarrow{+2}$ 12 $\xrightarrow{+3}$ 9

In 3rd Row ⇒ 10 $\xrightarrow{+2}$ 15 $\xrightarrow{+3}$ **12**

Ex.12

5	6	7	8
10	18	21	24
7	9	10	?

(a) 11 (b) 15

(c) 13 (d) 20

Sol. (a) In 1st Column ⇒ $\frac{10}{5} + 5 = 7$

In 2nd Column ⇒ $\frac{18}{6} + 6 = 9$

In 3rd Column ⇒ $\frac{21}{7} + 7 = 10$

In 4th Column = $\frac{24}{8} + 8 =$ **11**

Ex.13 Find Missing number.

3	9	18
6	36	?
2	4	12

(a) 12 (b) 6

(c) 612 (d) 81

Sol. (b) middle no. is multiplication of diagonally opposite no.

$3 \times 12 = 36$

$18 \times 2 = 36$

$9 \times 4 = 36$

$6 \times$ **6** $= 36$

Ex.14 Find Missing number?

11	6	8
17	12	?
25	34	19
19	28	11

(a) 16 (b) 15

(c) 13 (d) 9

Sol. (a) In 1st Column ⇒ 11 + 25 = 17 + 19 = 36

In 2nd Column ⇒ 6 + 34 = 12 + 28 = 40

In 3rd Column ⇒ 8 + 19 = **16** + 11 = 27

Ex.15 Find Missing number

9	4	20
8	5	15
7	6	?

(a) 4 (b) 6

(c) 3 (d) 2

Sol. (b) In 1st Row $(9 - 4) \times 4 = 20$

In 2nd Row $(8 - 5) \times 5 = 15$

In 3rd $(7 - 6) \times 6 =$ **6**

Ex.16 Find Missing Term?

14	9	12	20
4	9	8	10
12	13	7	20
3	3	11	?
20	42	19	40

(a) 2 (b) 8

(c) 12 (d) 4

Sol. (b) In First Column ⇒ $(14 \times 4) - (12 \times 3) = 20$

In 2nd Column ⇒ $(9 \times 9) - (13 \times 3) = 42$

In 3rd Column ⇒ $(12 \times 8) - (7 \times 11) = 19$

In 4th Column ⇒ $(20 \times 10) - (20 \times$ **8**$) = 40$

Ex.17 Find Missing Term?

0	–1	–2
1	0	–1
2	?	0

(a) 0 (b) –2

(c) –1 (d) 1

Sol. (d) In First column ⇒ 0 + 1 = 1

1 + 1 = 2

In 2nd Column ⇒ – 1 + 1 = 0

0 + 1 = **1**

In 3rd Column ⇒ – 2 + 1 = – 1

– 1 + 1 = 0

Ex.18 Find Missing Term?

23	529	1024
21	441	144
19	361	?

(a) 1441 (b) 3529

(c) 9361 (d) 8281

Sol. (d) In 1st Row

$(23)^2 = 529$ On changing places of 23

($(23)^2 = 529$, 23 $(32)^2 = 1024$ It becomes 32, Then

(32 $(32)^2 = 1024$)

In 2nd Row ⇒

$(21)^2 = 441$ On Changing places of 21

$(12)^2 = 144$ it becomes

12, Then

In 3rd Row Þ

$(19)^2 = 361$ on Changing places of 19

$(91)^2 =$ **8281** it becomes 91, then

Ex.19

0	2	4
2	6	3
3	?	5
35	225	216

(a) 0 (b) 2

(c) 1 (d) 4

Sol. (c) In 1st Column Þ $(0)^3 + (2)^3 + (3)^3 = 35$

In 2nd Column Þ $(2)^3 + (6)^3 + (1)^3 = 225$

In 3rd Column Þ $(4)^3 + (3)^3 + (5)^3 = 216$

Ans = 1

Ex.20 Find the Missing Term.

67	91	45
78	90	36
?	81	27

(a) 95 (b) 98

(c) 105 (d) 111

Sol. (c) In Third Column Þ $4 \overset{+}{\frown} 5$

$= 9 \times 4 = 36$

$3 \overset{+}{\frown} 6 = 9 \times 3 = 27$

In 2nd Column Þ $9 \overset{+}{\frown} 1$

$= 10 \times 9 = 90$

$9 \overset{+}{\frown} 0 = 9 \times 9 = 81$

In 1st Column Þ $6 \overset{+}{\frown} 7 = 13 \times 6 = 78$

$7 \overset{+}{\frown} 8 = 15 \times 7 =$ **105**

Ex.21 Find Missing Term.

4	5	6
2	3	7
1	8	3
21	98	?

(a) 94 (b) 76

(c) 73 (d) 16

Sol. (a) In 1st Column Þ $4^2 + 2^2 + 1^2 = 21$

In 2nd Column Þ $5^2 + 3^2 + 8^2 = 98$

In 3rd Column Þ $6^2 + 7^2 + 3^2 =$ **94**

Ex.22 Find Missing Term

3	8	10	2	?	1
6	56	90	2	20	0

(a) 5 (b) 0

(c) 7 (d) 3

Sol. (a) In all Columns

Þ $3^2 - 3 = 6$

$8^2 - 8 = 56$

$10^2 - 10$

$= 90$

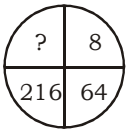
$2^2 - 2 = 2$

$\mathbf{5^2} - 5 = 20$

$1^2 - 1 = 0$

In Circle Þ In Circle Pattern can be of "Number Series", "Logic in opposite sector of circle"

Ex.23 Find missing term in circle?



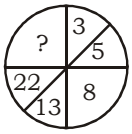
(a) 1 (b) 512

(c) 9 (d) 8

Sol. (b) In this circle pattern is made by series of cube of even numbers

$2^3 = 8$, $4^3 = 64$, $6^3 = 216$, $\mathbf{(8)^3} =$ **512**

Ex.24 Find Missing Term.



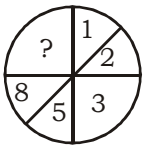
(a) 1 (b) 26

(c) 39 (d) 45

Sol. (c) In this circle the following series is set

3 ×2 –1 5 ×2–2 8 ×2 –3 13 ×2 –4 22 ×2 –5 **39**

Ex.25 Find missing term



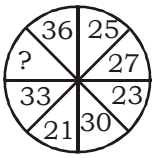
(a) 10 (b) 15

(c) 13 (d) 12

Sol. (c) In this circle the series is set clock wise from1.

1 + 2 = 3, 2 + 3 = 5, 3 + 5 = 8, 5 + 8 = **13**

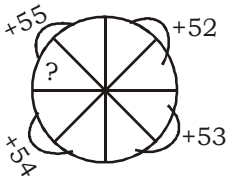
Ex.26

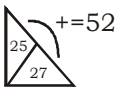


(a) 35 (b) 32

(c) 22 (d) 19

Sol. (d) In this circle the sum of four different sectors are in increasing order





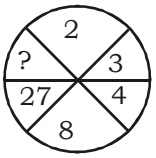
25 + 27 = 52

23 + 30 = 53

21 + 33 = 54

36 + **19** = 55

Ex.27 Find the missing term:



(a) 49 (b) 45

(c) 64 (d) 56

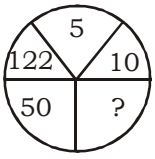
Sol. (c) In this circle the pattern make by the opposite sectors.

$3^3 = 27$

$2^3 = 8$

$4^3 =$ **64**

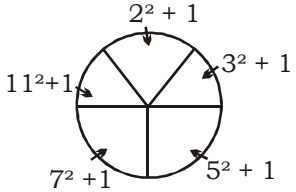
Ex.28 Find Missing Term?



(a) 25 (b) 26

(c) 23 (d) 27

Sol. (b) In this figure following series is set?



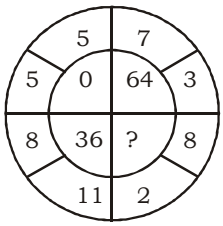
Square of prime no. than Add one.

$2^2 + 1 = 5$ $7^2 + 1 = 50$

$3^2 + 1 = 10$ $11^2 + 1 = 122$

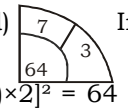
$5^2 + 1 =$ **26**

Ex.29



(a) 0 (b) 125

(c) 100 (d) 144

Sol. (d) 

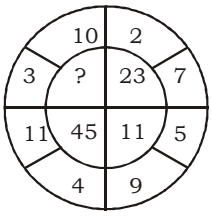
In this sector $\Rightarrow [(7-3)\times 2]^2 = 64$

Same in other $[(11-8)\times 2]^2 = 36$

$[(5-5)\times 2]^2 = 0$

$[(8-2)\times 2]^2 \Rightarrow$ **144**

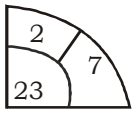
Ex.30 Find Missing Term?



(a) 46 (b) 34

(c) 91 (d) 21

Sol. (a)



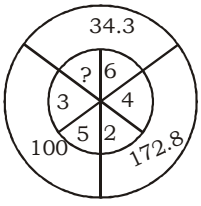
In this sector $(7-2)^2 - 2 = 23$

Same in other sector $= (9-5)^2 - 5 = 11$

$(11-4)^2 - 4 = 45$

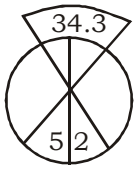
$(10-3)^2 - 3 =$ **46**

Ex.31 Find Missing term?



(a) 8 (b) 9

(c) 36 (d) 11

Sol. (b) 

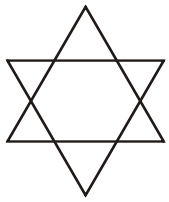
In this figure

$\frac{(5+2)^3}{10} = 34.3$

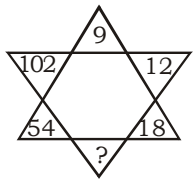
same in other $\frac{(6+4)^3}{10} = 100$

$\frac{(3+\mathbf{9})^3}{10} = 172.8$

In Triangle $\rightarrow$ in this type of figure pattern is made by series, opposite sector etc.



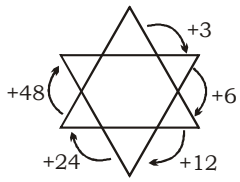
Ex.32 Find Missing Term



(a) 40 (b) 48

(c) 30 (d) 24

Sol. (c) In this figure following series is set



9 + 3 = 12

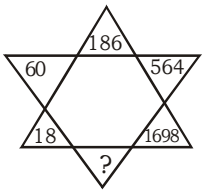
12 + 6 = 18

18 + 12 = **30**

30 + 24 = 54

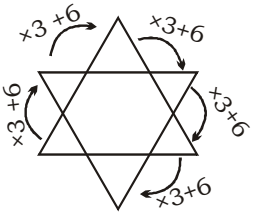
54 + 48 = 102

Ex.33



(a) 5052 (b) 5100

(c) 5094 (d) 4860

Sol (b) 

18 × 3 + 6 = 60

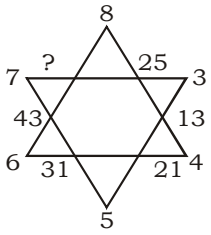
60 × 3 + 6 = 186

186 × 3 + 6 = 564

564 × 3 + 6 = 1698

1698 × 3 + 6 = **5100**

Ex.34



(a) 56 (b) 57

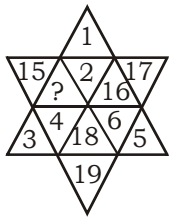
(c) 58 (d) 59

Sol. (b) $(8\times 3)+1 = 25$ $(5\times 6)+1 = 31$

$(3 \times 4) + 1 = 13$ $(6 \times 7) + = 43$

$(4 \times 5) + 1 = 21$ $(7 \times 8) + 1 =$ **57**

Ex.35



(a) 13 (b) 14

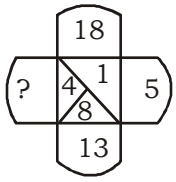
(c) 20 (d) 21

Sol. (b) 1 + 17 = 2 + 16 19 + 3 = 18 + 4

17 + 5 = 16 + 6 3 + 15 = 4 + **14**

5 + 19 = 6 + 18

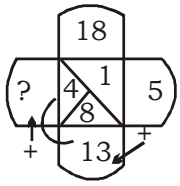
Ex.36



(a) 10 (b) 17

(c) 11 (d) 13

Sol. (b)



8 + 5 = 13

4 + 13 = **17**

17 + 1 = 18

Ex.37

A	22	?	14	U
26	E	?	O	10

(a) $\frac{L}{14}$ (b) $\frac{I}{18}$

(c) $\frac{I}{20}$ (d) $\frac{L}{20}$

Sol. (b)

A		I		U
	E		O	

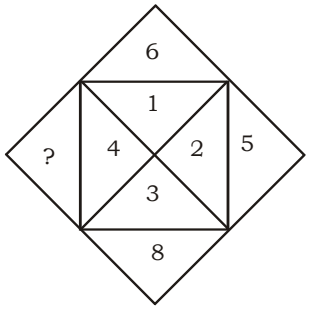
Vowels

	22		14	
26		18		10

Series

Ans:- $\frac{I}{18}$

Ex.38



(a) 10 (b) 11

(c) 12 (d) 14

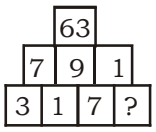
Sol. (b) 4 + (1 × 2) = 6

1 + (2 × 2) = 5

2 + (3 × 2) = 8

3 + (4 × 2) = **11**

Ex.39



(a) 3 (b) 9

(c) 5 (d) 2

Sol. (a) In last Row Þ 3 × 1 × 7 × **3** = 63

In 2nd Row Þ 7 × 9 × 1 = 63

Ex.40

CK	16	9	JR
OS	24	19	TX
KM	?	?	PV

(a) 56,84, (b) 21,14

(c) 84,56 (d) 14,21

Sol. (b) In First Row

$\frac{J+R}{2}+2 = \frac{10+18}{2}+2 = 16$

$\frac{C+K}{2}+2 = \frac{3+11}{2}+2 = 9$

In 2nd Row

$\frac{O+S}{2}+2 = \frac{15+19}{2}+2 = 19$

$\frac{T+X}{2}+2 = \frac{20+24}{2}+2 = 24$

In last Row

$\frac{K+M}{2}+2 = \frac{11+13}{2}+2 = \mathbf{14}$

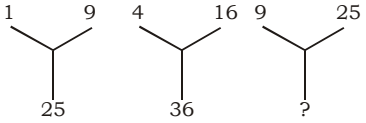
$\frac{P+V}{2}+2 = \frac{16+22}{2}+2 = \mathbf{21}$

Hence Answer = (21,14)

TYPE-2

When No. of Figure are two or more then two.

Ex.1



(a) 47 (b) 49

(c) 50 (d) 57

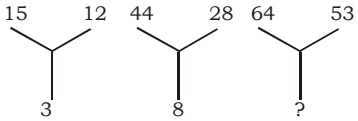
Sol. (b) In First figure = 1^2 ,3^2,5^2

In 2nd Figure = 2^2,4^2,6^2

Similar

In last Figure = 3^2, 5^2, $\mathbf{7^2}$

Ex.2 Find Missing Term?



(a) 30 (b) 13

(c) 70 (d) 118

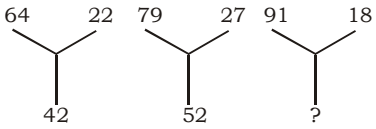
Sol. (b) In 1st figure = $\frac{15+12}{9}$ =3

In 2nd Figure = $\frac{44+28}{9}$ = 8

Similarly

In last figure = $\frac{64+53}{9}$ = **13**

Ex.3



(a) 62 (b) 37

(c) 73 (d) 19

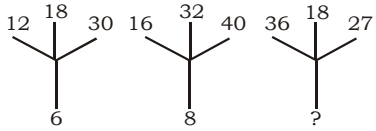
Sol. (c) In First Figure = 42 + 22 = 64

In 2nd Figure = 52 + 27 = 79

Similarly

In 3rd Figure = 18 + **73** = 91

Ex.4



(a) 6 (b) 9

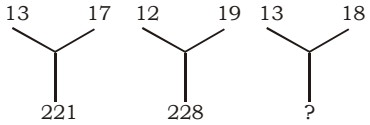
(c) 12 (d) 18

Sol. (b) In first Figure 12,18,30 are multiple of 6

In 2nd Figure 16,32,40 are multiple of 8

In last figure 36,18,27 are multiple of **9**

Ex.5



(a) 31 (b) 229

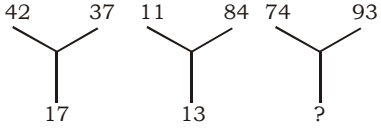
(c) 234 (d) 312

Sol. (c) In first figure = 13 × 17 = 221

In 2nd figure = 12 × 19 = 228

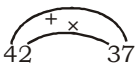
In last figure = 13 × 18 = **234**

Ex.6



(a) 46 (b) 42

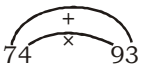
(c) 44 (d) 40

Sol. (a) In first figure 

(2 ×3) + (4 + 7) = 17

In 2nd Figure 

(1 × 8) + (1 + 4) = 13

On last figure 

$(4\times9) + (7 + 3) = 46$

Ex.7 $5\ \overset{3}{\underset{2}{\boxed{12}}}\ 4\ 5\ \overset{6}{\underset{3}{\boxed{18}}}\ 2\ \ 5\ \overset{2}{\underset{9}{\boxed{?}}}\ 2$

(a) 15 (b) 18

(c) 17 (d) 16

Sol. (b) In first Figure

$$= \frac{3' 4' 2' 5}{10} = 12$$

In 2nd figure = $\frac{6' 5' 3' 2}{10}$

= 18

In last figure = $\frac{5' 9' 2' 2}{10}$

= **18**

Ex.8

	17			24			61	
52	89	12	61	167	33	121	?	33
	8			49			15	

(a) 240 (b) 230

(c) 232 (d) 251

Sol. (b) In First Figure 17 + 12 + 8 + 52 = 89

In 2nd Figure 24 + 33 + 61 + 49 = 167

In 3rd figure 61 + 33 + 121 + 15 = **230**

Ex.9 $\overset{6}{8}\ (40)\ \overset{2}{\underset{4}{}}\quad \overset{6}{5}\ (32)\ \overset{2}{\underset{3}{}}\quad \overset{4}{5}\ (?)\ \overset{4}{\underset{9}{}}$

(a) 32 (b) 44

(c) 38 (d) 50

Sol. (b) In 1st figure (6 + 2 + 4 + 8) × 2 = 40

In 2nd figure (6 + 2 + 3 + 5)× 2 = 32

In 3rd figure (5 + 4 + 4 + 9) × 2 = 44

Ex.10 $\overset{14}{9}\ (5)\ 19\quad \overset{?}{13}\ (7)\ 27\quad \overset{26}{17}\ (9)\ 35$ ($\overset{}{\underset{4}{}}$, $\overset{}{\underset{6}{}}$, $\overset{}{\underset{8}{}}$)

(a) 18 (b) 20

(c) 22 (d) 24

Sol. (b) In Figure

$$= \frac{(9+19)-(14+4)}{2} = 5$$

In 2nd figure

$$= \frac{(13+27)-(6+\mathbf{20})}{2} = 7$$

In 3rd figure

$$= \frac{(35+17)-(26+8)}{2} = 9$$

Ex.11 $\overset{2}{4}\ (6)\ 1\quad \overset{5}{4}\ (30)\ 2\quad 1\ (?)\ 7$ ($\overset{}{\underset{3}{}}$, $\overset{}{\underset{3}{}}$, $\overset{}{\underset{2}{}}$)

(a) 21 (b) 22

(c) 25 (d) 27

Sol. (a) In first figure

$$\Rightarrow \frac{4\times3\times2\times1}{4} = 6$$

In 2nd figure

$$\Rightarrow \frac{4\times5\times2\times3}{4} = 30$$

In 3rd figure

$$\Rightarrow \frac{1\times6\times7\times2}{4} = \mathbf{21}$$

Ex.12 :" $100\ \overset{25}{\underset{25}{(6)}}\ 100\quad 25\ \overset{25}{\underset{36}{(5)}}\ 81\quad 25\ \overset{25}{\underset{25}{(4)}}\ 25\quad 36\ \overset{49}{\underset{16}{(?)}}\ 9$

(a) 2 (b) 3

(c) 4 (d) 5

Sol. In 1st figure

$$0\ \frac{\sqrt{25}+\sqrt{100}+\sqrt{25}+\sqrt{100}}{5} = 6$$

In 2nd figure =

$$\frac{\sqrt{25}+\sqrt{81}+\sqrt{36}+\sqrt{25}}{5} = 5$$

In 3rd figure

$$\frac{\sqrt{25}+\sqrt{25}+\sqrt{25}+\sqrt{25}}{5} = 4$$

In 4th figure =

$$\frac{\sqrt{49}+\sqrt{9}+\sqrt{16}+\sqrt{36}}{5} = 4$$

Ex.13

15 22 / 36 / 16 9	13 11 / 16 / 7 9	21 ? / 64 / 15 13

(a) 23 (b) 19

(c) 20 (d) 22

Sol. (a) In 1st figure = (22 –16) × (15 – 9) = 36

In 2nd figure = (11 – 7) × (13 –9) = 16

In 3rd figure = (**23** – 15) × (21 – 13) = 64

Ex.14

16 3 / 1 / 8 4	20 5 / 8 / 4 3	18 5 / ? / 6 4

(a) 3 (b) 10

(c) 15 (d) 60

Sol. (a) In 1st figure = 1 + 3 + 4 + 8 = 16

In 2nd figure = 3 + 5 + 8 + 4 = 20

In 3rd figure = 6 + 4 + 5 + **3** = 18

Ex.15

6 9 / 6 / 15 12	4 8 / 8 / 16 12	5 8 / ? / 14 11

(a) 12 (b) 10

(c) 8 (d) 6

Sol. (d) In 1st figure = (12 –6) = (15 –9) = 6

In 2nd figure = (12 –4) = (16 –8) = 8

In 3rd figure = (11 –5) = (14 – 8) = **6**

Ex.16

9 5 / 121 / 92 15	16 19 / 79 / 20 24	56 7 / ? / 8 9

(a) 38 (b) 80

(c) 89 (d) 18

Sol. (b) In 1st Figure = 9 + 5 + 15 + 92 = 121

In 2nd Figure = 16 + 19 + 20 + 24 = 79

In 3rd Figure = 7 + 8 + 9 + 56 = **80**

Ex.17

3 5 / 93 / 6 3	4 7 / 15 / 5 4	3 5 / ? / 5 4

(a) 35 (b) 37

(c) 45 (d) 73

Sol. (d) In first Figure = (5×6) +(3×3) = 39

Change Place = 93

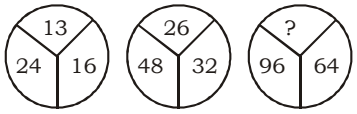
In 2nd figure = (7 ×5) + (4 × 4) = 51

Change Place = 15

In 3rd Figure = (5 ×5) + (4×3) = 37

Change Place = 73

Ex.18



(a) 160 (b) 25

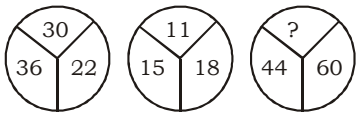
(c) 32 (d) 52

Sol. (d) 13× 2 = 26, 26 × 2 = **52**

24 × 2 = 48, 48 × 2 = 96

16 × 2 = 32, 32 × 2 = 64

Ex.19



(a) 45 (b) 54

(c) 72 (d) 90

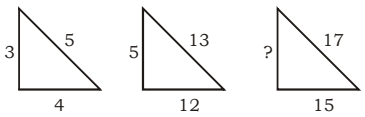
Sol. (c) In first figure = $\frac{30+36}{3}$

=22

In 2nd figure = $\frac{15+18}{3}$ =11

In 3rd figure = $\frac{60+\mathbf{72}}{3}$ = 44

Ex.20



(a) 2 (b) 8

(c) 64 (d) 6

Sol. (b) In 1st Figure $\sqrt{3^2+4^2}$ = 5

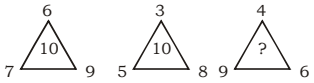
In 2nd Figure $\sqrt{5^2+12^2}$

= 13

In 3rd Figure $\sqrt{\mathbf{8^2}+15^2}$

= 17

Ex.21



(a) 11 (b) 10

(c) 15 (d) 20

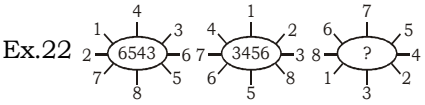
Sol. (a) In 1st Figure = 7 + 9 – 6

= 10

In 2nd Figure = 5 + 8 – 3 = 10

In 3rd Figure = 9 + 6 – 4 = **11**

Ex.22



(a) 6543 (b) 5634

(c) 5364 (d) 3564

Sol. (c) In first figure =

$\left(\frac{4+8}{2}\right)\left(\frac{7+3}{2}\right)\left(\frac{2+6}{2}\right)\left(\frac{1+5}{2}\right)$

6543

In 2nd figure=

$\left(\frac{5+1}{2}\right)\left(\frac{6+2}{2}\right)\left(\frac{7+3}{2}\right)\left(\frac{4+8}{2}\right)$

3456

In last figure

$= \left(\frac{3+7}{2}\right)\left(\frac{1+5}{2}\right)\left(\frac{8+4}{2}\right)\left(\frac{6+2}{2}\right)$

5364

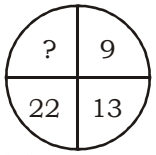
EXERCISE

TYPE-I

Directions

Find the missing number from the given responses in each of the following questions.

1.



(a) 40 (b) 38
(c) 39 (d) 44

2. 4 9 2
3 5 7
8 1 ?
(a) 9 (b) 6
(c) 15 (d) 14

3. In the question given below the number given at the top follow a certain specific pattern. Study out the pattern and find out the missing number.

9	4	20
8	5	12
7	6	?

(a) 2 (b) 4
(c) 6 (d) 9

4. 5 4 9
6 3 ?
7 2 4
65 20 45
(a) 4 (b) 2
(c) 3 (d) 1

5. 9 6 8
5 8 4
7 4 ?
11 2 7
(a) 4 (b) 7
(c) 3 (d) 6

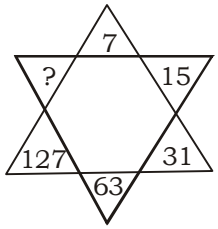
6. 4 12 11 5
6 7 10 3
8 9 10 7
7 5 ? 4
(a) 12 (b) 14
(c) 13 (d) 8

7. 6 18 15
3 2 5
4 3 ?
8 27 9
(a) 2 (b) 4
(c) 3 (d) 5

8. 2 12 ?
50 300 550
10 60 110
124 744 1364
(a) 22 (b) 33
(c) 44 (d) 55

9. 9 3 7
12 2 9
13 5 ?
1404 30 504
(a) 5 (b) 8
(c) 15 (d) 56

10.



(a) 190 (b) 255
(c) 221 (d) 536

11. 7 21 15
49 441 225
98 882 450
140 1302 ?
(a) 6750 (b) 690
(c) 1380 (d) 660

12. 11 6 8
17 12 ?
25 34 19
19 28 11
(a) 13 (b) 15
(c) 16 (d) 9

13.

25	49	81
5	7	?
15	13	11
20	20	20

(a) 9 (b) 3
(c) 61 (d) 31

14. The given equations follow the same rule. Find the missing number according to it.
836 (316) 112
213 (?) 420
(a) 368 (b) 220
(c) 211 (d) 468

15.

5	20	6	9
4	8	15	3
9	25	7	9
22	7	8	?

(a) 7 (b) 8
(c) 9 (d) 10

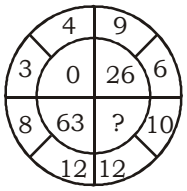
16. 341 (16) 521
613 (25) 816
452 (?) 326
(a) 27 (b) 22
(c) 30 (d) 41

17. Find the missing number from the given responses:

4	9	17	6
20	5	8	9
7	23	9	9
?	9	4	19

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

18.



(a) 12 (b) 7
(c) 16 (d) 14

19. 1 3 7
2 4 4
4 5 9
3 2 3
50 70 ?
(a) 23 (b) 115
(c) 118 (d) 220

20.

7	3	2
4	9	6
2	1	5
69	91	?

(a) 58 (b) 51
(c) 65 (d) 64

21.

169	64	81	30
625	?	49	50
1296	576	100	70

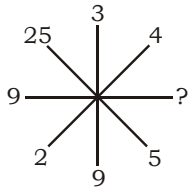
(a) 324 (b) 289
(c) 441 (d) 361

22. 6 9 12
36 81 144
24 63 ?
(a) 120 (b) 80
(c) 94 (d) 102

23. Find out the numbers that would fit in the second row and third row middle and last blank spaces (?) respectively.
18 23 16

17 19 ?
22 ? ?
(a) 26,24,25
(b) 21,15,20
(c) 22,15,20
(d) 25,24,36

24.



(a) 81 (b) 64
(c) 32 (d) 20

25. 408 (169) 395
129 (?) 122
(a) 49 (b) 39
(c) 59 (d) 48

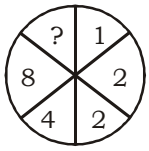
26. 5 7 8
4 6 6
2 3 ?
10 14 12
(a) 2 (b) 4
(c) 61 (d) 3

27.

26	18	10
11	9	7
5	4	1
10	5	?

(a) 4 (b) 2
(c) 5 (d) 6

28.



(a) 32 (b) 6
(c) 12 (d) 20

29. 7 9 5 11
4 15 12 7
13 8 11 ?
(a) 20 (b) 10
(c) 30 (d) 70

30.

3	1	4
5	4	7
2	8	?
38	81	74

(a) 9 (b) 6
(c) 3 (d) 7

31. A = 12 (175) 15, b = 14 (219) 16, c = 17 (?) 14
(a) 223 (b) 233
(c) 224 (d) 230

32.

24	144	384
6	36	?
2	12	32
1	6	16

(a) 85 (b) 80
(c) 96 (d) 91

33. F J N
M Q U
O S ?
(a) U (b) W
(c) X (d) Y

34.

1	$\frac{1}{2}$	$\frac{3}{2}$
2	$\frac{2}{3}$	$\frac{8}{3}$
3	?	$\frac{19}{5}$

(a) $\frac{1}{2}$ (b) $\frac{2}{3}$
(c) $\frac{3}{4}$ (d) $\frac{4}{5}$

35. Find the missing number in the matrix.

10	17	8
5	3	15
6	14	?
42	68	92

(a) 23 (b) 10
(c) 25 (d) 46

36. 144 (132) 121
64 (?) 100
(a) 70 (b) 80
(c) 85 (d) 90

37.

6	7	5
7	8	6
8	9	?
62	79	47

(a) 4 (b) 7
(c) 8 (d) 9

38. 9 4 5
12 16 15
15 20 25
180 80 ?
(a) 125 (b) 75
(c) 20 (d) 25

39. 5 3 7 1
7 5 9 3
4 4 4 4
3 2 ? 1
(a) 6 (b) 5
(c) 4 (d) 2

40. 5 4 41
7 3 58
10 2 ?
(a) 34 (b) 12
(c) 99 (d) 104

41. 10 85 8
7 54 7
8 ? 9
(a) 72 (b) 77
(c) 74 (d) 79

42. 7 23 21
1 3 ?
2 5 7
3 4 3
(a) 1 (b) 0
(c) 2 (d) 3

43.

2	9	11	7
8	5	13	–3
7	?	10	(–4)
6	4	10	?

(a) 3 and 2
(b) (–3) and 2
(c) 3 and (–2)
(d) (–3) and (–2)

44. 2 3 4
24 39 ?
20 30 40
(a) 44 (b) 49
(c) 50 (d) 56

45. 5 1 25
6 2 18
10 4 25
3 3 ?
(a) 10 (b) 9
(c) 3 (d) 4

46. 4 3 2
6 9 10
9 27 ?
(a) 54 (b) 30
(c) 20 (d) 50

47.

(a) 330 (b) 336
(c) 428 (d) 420

48. Select the missing number from the given responses.
92 70 48
64 53 42
52 45 ?
(a) 36 (b) 40
(c) 38 (d) 42

49. 3 4 13

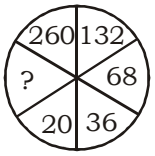
8 8 56
5 3 ?

(a) 4 (b) 6
(c) 8 (d) 2

50. 25 17 41
32 40 11
26 ? 31

(a) 25 (b) 34
(c) 38 (d) 26

51. Find the missing number from the given responses.



(a) 12 (b) 10
(c) 9 (d) 8

52.

7	9	8
2	4	3
5	7	6
16	32	?

(a) 17 (b) 23
(c) 47 (d) 73

53. 8 3 12
2 3 6
4 3 3
4 3 ?

(a) 5 (b) 6
(c) 7 (d) 15

54. 7 6 8
5 4 9
3 2 1
83 56 ?

(a) 146 (b) 128
(c) 136 (d) 148

55. 15 225 30
7 70 20
3 ? 8

(a) 70 (b) 12
(c) 16 (d) 24

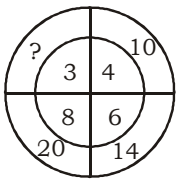
56. 6 8 7
36 64 49
24 48 35
18 24 ?

(a) 17 (b) 18
(c) 19 (d) 21

57. 2 4 3 2
9 7 6 5
? 33 27 21

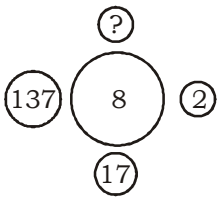
(a) 77 (b) 35
(c) 69 (d) 80

58.



(a) 19 (b) 18
(c) 24 (d) 12

59.



(a) 9107 (b) 97
(c) 907 (d) 1097

60. 9 11 13
13 15 17
10 12 14
14 16 18
11 13 ?

(a) 21 (b) 22
(c) 14 (d) 15

SOLUTION

1. (b) $9+2^2=13$
$13+3^2=22$
$22+4^2=$**38**

2. (b) Sum of each row, column and diagonal is 15.
4+9+2 = 15
3+5+7 = 15
8+1+**6** = 15

3. (b) In first row Þ (9–4)×4=20
In 2nd row Þ (8–5)×4=12
In 3rd row Þ (7–6)×4=4

4. (d) In first column
Þ (6+7)×5 =65
In 2nd column
Þ (2+3)×4=20
In 3rd column
Þ (4+**1**)×9=45

5. (c) In first column Þ 9+7=11+5
In 2nd column Þ 6+4 = 8+2
In 3rd column Þ 8+3 = 4+7

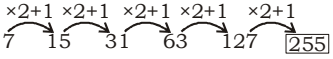
6. (d) In first row Þ 4+12 = 11+5
In 2nd row Þ 6+7=10+3
In 3rd row Þ 8+9=10+7
In 4th row Þ 7+5=**8**+4

7. (c) In first column Þ $\left(\frac{6}{3}\right)\times 4=8$
In 2rd column Þ $\left(\frac{18}{2}\right)$
×3 =27
In 3rd column Þ $\left(\frac{15}{5}\right)\times$**3**
=9

8. (a) In first column
Þ (2+50+10)×2=124
In 2nd column
Þ (12+300+60)×2 = 744
In 3rd column
Þ (**22**+550+110)×2=1364

9. (b) In first column Þ 9×12×13=1404
In 2nd column Þ 3×2×5=30
In 3rd column Þ 7×9×**8**=504

10. (b) In this figure series is set as given below.



11. (d) In first column Þ 49+98 –7 Þ 140
In 2nd column Þ 441+882 –21 Þ 1302
In 3rd column
Þ 225+450–15 Þ **660**

12. (c) In first column
Þ 11+25–17=19
In 2nd column Þ 6+34 –12=28
In 3rd column Þ 8+19 –16 Þ 11

13. (a) In first column Þ $\left(\frac{25}{5}\right)+15=20$
In 2nd column Þ $\left(\frac{49}{7}\right)+13$

=20

In 3rd column Þ $\left(\frac{81}{\mathbf{9}}\right)+11$

=20

14. (c) In first row Þ $\frac{836+112}{3}=316$

In 2nd row Þ $\frac{420+213}{3}$

=**211**

15. (a) In first row Þ 5+6+9=20
In 2nd row Þ 4+8+3=15
In 3rd row Þ 9+7+9=25
In 4th row Þ 7+8+**7**=22

16. (b) In Ist row Þ (3+4+1)+(5+2+1)=16
In 2nd row Þ (6+1+3)
+(8+1+6)=25
In 3rd row Þ (4+5+2)+(3+2+6)
=22

17. (c) In Ist row Þ 9+6+4–17=2
In 2nd row Þ 5+8+9–20=2
In 3rd row Þ 9+9+7–23=2
In 4th row Þ 9+4+8–19=2

18. (b)

In this figure
$(9-6)^3-1=26$
same
$(12-8)^3-1=63$
$(4-3)^3-1=0$
$(12-10)^3-1=7$

19. (b) In first column Þ (1+2+4+3)×5=50
In 2nd column Þ (3+4+5+2)
×5=70
In 3rd column Þ (7+4+9+3)
×5=115

20. (c) In first column Þ $(7^2+4^2+2^2)=69$
In 2nd column Þ $(3^2+9^2+1^2)$
=91
In 3rd column Þ $(2^2+6^2+5^2)$
=**65**

21. (a) In first row Þ

$\sqrt{169}+\sqrt{64}+\sqrt{81}=30$

In 2nd row Þ

$\sqrt{625}+\sqrt{\mathbf{324}}+\sqrt{49}=50$

In 3rd row Þ

$\sqrt{1296}+\sqrt{576}+\sqrt{100}=70$

22. (a) column Ist Þ 6×6=36
6×(6–2)=24
column 2nd Þ 9×9=81
9×(9–2)=63
column 3rd Þ 12×12=144
12×(12–2)=**120**

23. (c) Sum of all row, column and diagonal is 57.
first row Þ 18+23+16=57
2nd row Þ 17+19+21 Þ 57
3rd row Þ 22+15+20 Þ 57

24. (a) In this, squaring of no. on opposite side.
$5^2=25$
$3^2=9$
$2^2=4$
$9^2=81$

25. (a) $(408-395)^2=169$ Þ frist row
$(129-122)^2=$**49** Þ 2nd row

26. (b) In first column Þ $\frac{5'4}{2}=10$

In 2nd column Þ $\frac{7'6}{3}=14$

In 3rd column Þ $\frac{8'6}{\mathbf{4}}=12$

27. (b) In 1st column
Þ 26–(11+5)=10
2nd column Þ 18–(9+4)=5
3rd column Þ 10–(7+1)=**2**

28. (a) This circle is set as the series given below
1×2=2
2×2=4
2×4=8
8×4=**32**

29. (b) In first row Þ (7+9)–5=11
In 2nd row Þ (4+15)–12=7
In 3rd row Þ (13+8)–11=10

30. (c) In first column Þ $3^2+5^2+2^2$
=38
2nd column Þ $1^2+4^2+8^2=81$
3rd column Þ $4^2+7^2+3^2=74$

31. (b) In first Þ 12×15–5=175
In 2nd Þ 14×16–5 Þ 219
In 3rd Þ 14×17–5 Þ **233**

32. (c) 1×2=2, 2×3=6, 6×4=24 Þ
first column
6 × 2 = 1 2 , 1 2 × 3 = 3 6 ,
36×4=144 Þ
2nd column
16×2=32,32×3
=96, **96**×4=384
Þ 3rd column

33. (b) In first row Þ

	+4	+4	
F	J	N	
6	10	14	

In 2nd row Þ

	+4	+4	
M	Q	U	
13	17	21	

In last row Þ

	+4	+4	
O	S	**W**	
15	19	23	

34. (d) $\left(\frac{3}{2}-1\frac{\ddot{o}}{\div}{\o}\right)=\frac{1}{2}$ Þ first row

$\left(\frac{8}{3}-2\frac{\ddot{o}}{\div}{\o}\right)=\frac{2}{3}$ Þ 2nd row

$\left(\frac{19}{5}-3\frac{\ddot{o}}{\div}{\o}\right)=\frac{\mathbf{4}}{\mathbf{5}}$ Þ 3rd row

35. (a) In first column
Þ (10+5+6)×2=42
In 2nd column
Þ (17+3+14)×2=68
In 3rd column
Þ (8+15+**23**)×2=92

36. (b) $\sqrt{144}\times\sqrt{121}=132$ first row

$\sqrt{64}\times\sqrt{100}=80$ 2nd row

37. (b) In first column Þ 7×8+6=62
2nd column Þ 8×9+7=79
In 3rd column Þ **7**×6+5=47

38. (b) In first column Þ L.C.M. of 9,12,15 =180
In 2nd column Þ L.C.M of 4,16,20=80
In 3rd column Þ L.C.M of 5,15,25 Þ **75**

39. (c) In first column Þ 5+7=4×3
In 2nd column Þ 3+5=4×2
In 3rd column Þ 7+9=4×**4**
In 4th cloumn Þ 1+3=4×1

40. (d) In first row Þ $5^2+4^2=41$
In 2nd row Þ $7^2+3^2=58$
In last row Þ $10^2+2^2=104$

41. (b) In first row Þ 10×8+5=85
In 2nd row Þ 7×7+5=54
In 3rd row Þ 8×9+5=**77**

42. (b) In first column Þ 2×3+1=7
In 2nd column Þ 4×5+3=23
In 3rd column Þ 3×7+**0**=21

43. (c) In first row Þ 2+9=11
9–2=7
In 2nd row Þ 8+5=13
5–8=(–3)
In 3rd row Þ 7+**3**=10
3–7=(–4)
In 4th row Þ 6+4=10
4–6=**–2**

44. (d) In first row Þ $20+2^2=24$
In 2nd row Þ $30+3^2=39$
In 3rd row Þ $40+4^2=56$

45. (c) In first row $\frac{5^2}{1}=25$

In 2nd row Þ $\frac{6^2}{2}=18$

In 3rd row Þ $\frac{10^2}{4}=25$

In 4th row

Þ $\frac{3^2}{3}=$**3**

46. (d) first column Þ $\sqrt{9'4}=6$

2nd column Þ $\sqrt{3'27}=9$

3rd column Þ $\sqrt{\mathbf{50}'2}=10$

47. (b) In this circle the following series is set

$2^3-2=6$, $3^3-3=24$, $4^3-4=60$, $5^3-5=120$

$6^3-6=210$, $7^3-7=$ **336**

48. (c) Sum of columns having difference '40'

92+64+52=208 first column

70+53+45=168 2nd column

48+42+**38**=128 3rd column

49. (a) In first row Þ $4^2-3=13$

2nd row Þ $8^2-8=56$

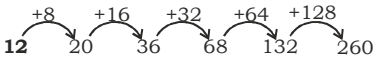
3rd row Þ $3^2-5=$**4**

50. (d) First row 25+17+41=83

2nd row 32+40+11=83

3rd row 26+**26**+31=83

51. (a) In this circle following series is set.



52. (b) In first column Þ

$7+5+(2)^2=16$

In 2nd column Þ

$9+7+(4)^2=32$

In 3rd column Þ $8+6+(3)^2$

=**23**

53. (b) $\sqrt[3]{8\times2\times4}$ = 4 first column

$\sqrt[3]{3\times3\times3}$ = 3 2nd column

$\sqrt[3]{12\times6\times3}$ = 6 3rd column

54. (a) $7^2+5^2+3^2=83$ first column

$6^2+4^2+2^2=56$ 2nd column

$8^2+9^2+1^2=$**146** 3rd column

55. (b) In first row $\frac{30}{2}\times15=225$

In 2nd row $\frac{20}{2}\times7=70$

In 3rd rwo Þ $\frac{8}{2}\times3=$**12**

56. (d) In first column Þ

6+36=24+18

In 2nd column Þ

8+64=48+24

In 3rd column Þ

7+49=35+**21**

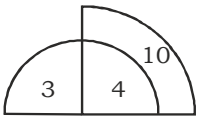
57. (a) In 4th column Þ (2+5)×(5–2)=21

In 3rd column Þ (3+6)×(6–3)=27

In 2nd column Þ (4+7)×(7–4)=33

In 1st column Þ (2+9)×(9–2)=77

58. (a)



3×2+4=10

4×2+6=14

6×2+8=20

8×2+3=**19**

59. (d) 2×8+1=17

17×8+1=137

137×8+1=**1097**

60. (d) In first row 9+2

=11, 11+2=13

In 2nd row 11+2=13,

13+2=15

In 3rd row 10+2=12,

12+2=14

In 4th row 14+2=16,

16+2=18

In 5th row

11+2=13, 13+2=**15**