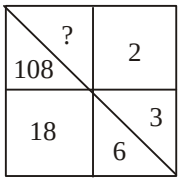
MAGIC CIRCLES & SQUARES

Magic Squares Problems

In these types of questions, numbers are arranged according to some rule in the cells made into a square. One cell is left empty, and we have to find the way the numbers are arranged and mark the answer from the choice given below. Let us consider some examples :–

Examples:

Ex.1



(A) 1 (B) 36

(C) 216 (D) 1944

Sol. The answer is 1944 as the numbers are arranged in the following way,

$2 \times 3 = 6$, $3 \times 6 = 18$, $6 \times 18 = 108$,

$18 \times 108 = 1944$

Ex.2

7	6	5
3	3	4
2	3	?

(A) 12 (B) 3

(C) 4 (D) 5

Sol. The answer is 3 because the sum of the numbers in each column is 12.

Ex.3

32	35	39
42	46	51
3	8	?

(A) 11 (B) 90

(C) 60 (D) 14

Sol. The answer is 14 because the numbers are increasing by 3 and 4 in the first row, 4 and 5 in the second row and 5 and 6 in the third row.

Ex.4

7	9	16
4	15	?
13	8	21

(A) 29 (B) 19

(C) 23 (D) 25

Sol. The answer is 19 because the sum of the first two numbers in each row gives the third number, i.e. 7 + 9 = 16, 4 + 15 = 19, 13 + 8 = 21

Ex.5

17	11	19
12	13	16
25	4	?

(A) 36 (B) 9

(C) 25 (D) 64

Sol. In the first column $25 = (17 - 12)^2$ therefore $(19 - 16)^2$ is 9

Ex.6

21	56	70
45	87	84
115	180	?

(A) 130 (B) 195

(C) 295 (D) 150

Sol. The rule is that in each row the difference of first two numbers is doubled.

i.e. $(56 - 21) \times 2 = 70$. Hence the required number $(180 - 115) \times 2 = 130$

Ex.7

17	15	8
99	95	64
36	45	?

(A) 729 (B) 1331

(C) –729 (D) –343

Sol. The rule is that in a row as $(17 - 15)^3 = 8$.

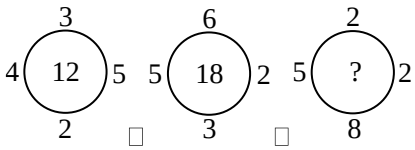
Therefore $(36 - 45)^3 = (-9)^3 = -729$

Magic Circle Problems

This unit is based on numerical calculations. Usually these are circles, the first two of which have four numbers at four points on the circle and one inside the circle. These numbers are placed according to some rules or sequence. The third cycle has any four numbers with fifth missing. We are required to find this number from the given choice, according to the same rule that holds good for other two circles.

Examples:

Ex.8



(A) 12 (B) 14

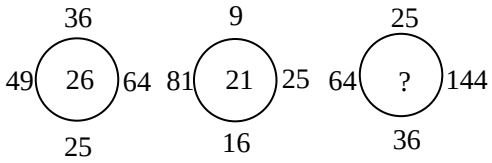
(C) 16 (D) 18

Sol. The answer to above question is (C) i.e. 16, because the numbers inside the first two circles are obtained by multiplying the outside numbers and dividing by 10, i.e.

$$\frac{5\times3\times4\times2}{10} = \frac{120}{10} = 12$$

The same follows for the second and third circles.

Ex.9



(A) 24 (B) 25

(C) 23 (D) 31

Sol. The answer is (D) i.e. 31, because the numbers inside the first two circles are obtained by taking the sum of the square roots of the four numbers outside the circles, e.g.

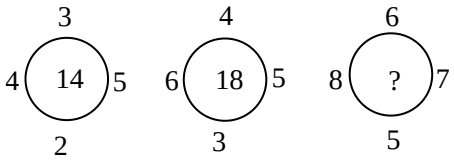
$\sqrt{49} + \sqrt{64} + \sqrt{25} + \sqrt{36}$

= 7 + 8 + 5 + 6 = 26 (I^{st} Circle)

and $\sqrt{16} + \sqrt{25} + \sqrt{9} + \sqrt{81}$

= 4 + 5 + 3 + 9 = 21 (II^{nd} Circle)

Ex.10



(A) 24 (B) 26

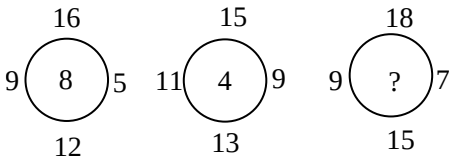
(C) 28 (D) 22

Sol. The answer is (B) i.e. 26, because

$(5^2 - 4^2) + (3^2 - 2^2) = 14$ (I^{st} circle) and

$(6^2 - 5^2) + (4^2 - 3^2) = 18$ (II^{nd} circle)

Ex.11



(A) 12 (B) 8

(C) 4 (D) 5

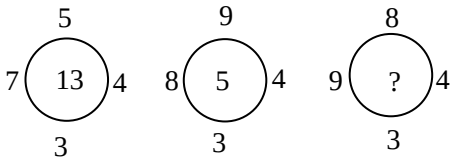
Sol. The answer is (D) i.e. 5, because

$(9 - 5) + (16 - 12) = 8$ (I^{st} Circle)

$(11 - 9) + (15 - 13) = 4$ (II^{nd} Circle)

so, $(9 - 7) + (18 - 15) = 5$ (III^{rd} Circle)

Ex.12



(A) 4 (B) 8

(C) 12 (D) 15

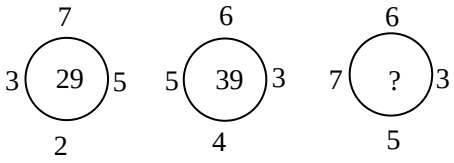
Sol. The answer is (C) i.e. 12 because

$(7 \times 4) - (5 \times 3) = 28 - 15 = 13$ (I^{st} Circle)

$(8 \times 4) - (9 \times 3) = 32 - 27 = 05$ (II^{nd} Circle)

So, $(9 \times 4) - (8 \times 3) = 36 - 24 = 12$ (III^{rd} Circle)

Ex.13



(A) 49 (B) 51

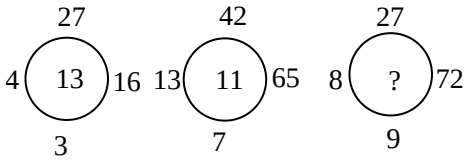
(C) 59 (D) 21

Sol. Answer is (B) i.e. 51, because

$(3 \times 5) + (7 \times 2) = 29$ and

$(5 \times 3) + (6 \times 4) = 39$

Ex.14



(A) 9 (B) 12

(C) 15 (D) 18

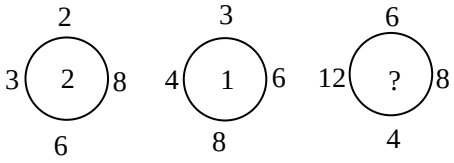
Sol. Answer is (B) i.e. 12, because

$(16 \div 4) + (27 \div 3) = 13$ (I^{st} Circle) and

$(65 \div 13) + (42 \div 7) = 5 + 6 = 11$ (II^{nd} Circle)

So, $(72 \div 8) + (27 \div 9) = 9 + 3 = 12$ (III^{rd} Circle)

Ex.15



(A) 3 (B) 4

(C) 5 (D) 6

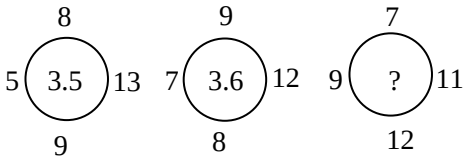
Sol. Ansser is (B) i.e. 4 because

$(3 \times 8) \div (2 \times 6) = 24 \div 12 = 2$ (I^{st} Circle)

$(4 \times 6) \div (8 \times 3) = 24 \div 24 = 1$ (II^{nd} Circle)

So, $(12 \times 8) \div (6 \times 4) = 96 \div 24 = 4$ (III^{rd} Circle)

Ex.16



(A) 3.7 (B) 3.8

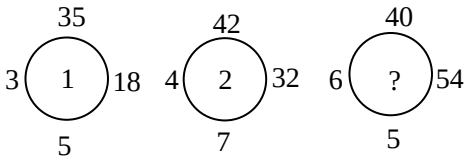
(C) 3.9 (D) 3.1

Sol. Answer is 3.9 because

$\frac{(5+13+9+8)}{10} = 35 \div 10 = 3.5$

So, $\frac{(7+9+11+12)}{10} = 39 \div 10 = 3.9$

Ex.17



(A) 0 (B) 1

(C) 3 (D) 5

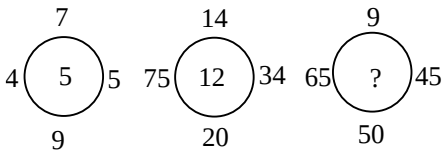
Sol. Answer is (B) i.e. 1 because pattern is

$(35 \div 5) - (18 \div 3) = 7 - 6 = 1$

$(32 \div 4) - (42 \div 7) = 8 - 6 = 2$

So, $(54 \div 6) - (40 \div 5) = 9 - 8 = 1$ Ans.

Ex.18



(A) 7 (B) 9

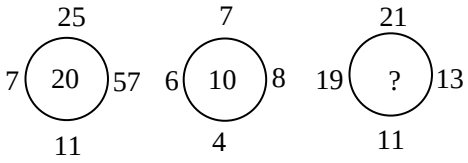
(C) 13 (D) 15

Sol. Answer is (C) i.e. 13 because

$\sqrt{4+7+5+9} = \sqrt{25} = 5$

$\sqrt{65+45+9+50} = \sqrt{169} = 13$ Ans.

Ex.19



(A) 16 (B) 25

(C) 36 (D) 49

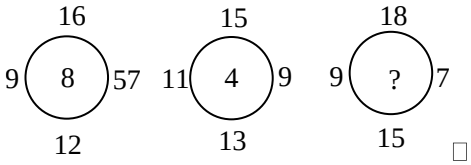
Sol. Answer is (A) i.e. 16 because

$2 \times \sqrt{25+57+11+7} = 2\sqrt{100} = 20$

$2 \times \sqrt{7+8+4+6} = 2\sqrt{25} = 10$

So, $2 \times \sqrt{21+13+19+11} = 2\sqrt{64} = 16$ Ans.

Ex.20



(A) 24 (B) 5

(C) 28 (D) 27

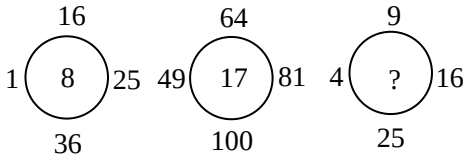
Sol. Answer is (B) i.e. 5 because

$(16 + 9) - (12 + 5) = 8$

$(11 + 15) - (9 + 13) = 4$

So, $(9 + 18) - (15 + 7) = 5$ Ans

Ex.21



(A) 6 (B) 7

(C) 8 (D) 9

Sol. Answer is (B) i.e. 7 because

$(\sqrt{1} + \sqrt{16} + \sqrt{25} + \sqrt{36}) \div 2$

$= 16 \div 2 = 8$

$(\sqrt{49} + \sqrt{64} + \sqrt{81} + \sqrt{100}) \div 2$

$= 34 \div 2 = 17$

So, $(\sqrt{4} + \sqrt{9} + \sqrt{16} + \sqrt{25}) \div 2$

$= 14 \div 2 = 7$ Ans.

Direction : Find the missing terms

Q.1

19	3	25
17	11	39
9	5	?

(A) 19 (B) 21

(C) 23 (D) 25

Q.2

12	15	54
37	14	102
71	23	?

(A) 168 (B) 178

(C) 188 (D) 190

Q.3

5	11	96
9	13	88
8	17	?

(A) 225 (B) 165

(C) 185 (D) 250

Q.4

5	7	74
11	8	185
13	?	205

(A) 5 (B) 6

(C) 7 (D) 8

Q.5

4	3	70
7	8	359
5	10	?

(A) 115 (B) 125

(C) 130 (D) 145

Q.6

11	7	324
15	6	441
9	5	?

(A) 140 (B) 106

(C) 186 (D) 196

Q.7

12	6	81
17	5	121
6	8	?

(A) 49 (B) 64

(C) 70 (D) 50

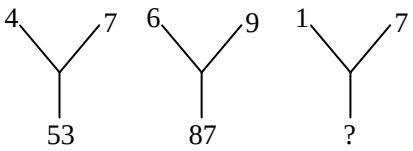
Q.8

225	64	23
16	1	5
49	81	?

(A) 71 (B) 16

(C) 60 (D) 30

Q.9



(A) 49 (B) 50

(C) 48 (D) 55

Q.10

A	22	I	12	?
26	E	18	O	?

(A) $\frac{13}{P}$ (B) $\frac{15}{Q}$

(C) $\frac{U}{6}$ (D) $\frac{6}{U}$

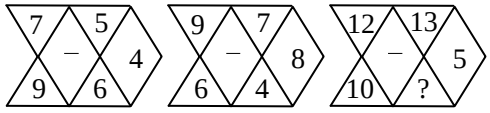
Q.11

3	6	8
5	8	4
4	7	?

(A) 6 (B) 7

(C) 8 (D) 9

Q.12



(A) 7 (B) 3

(C) 5 (D) 8

Q.13

B	G	N
D	J	R
G	N	?

(A) U (B) V

(C) W (D) X

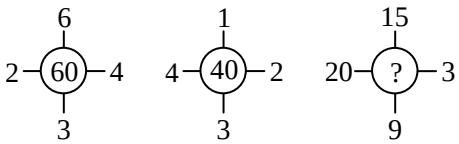
Q.14

6	7	4	15
7	15	25	28
8	13	?	20
3	5	7	9

(A) 14 (B) 22

(C) 18 (D) 20

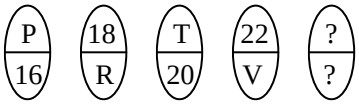
Q.15



(A) 235 (B) 141

(C) 144 (D) 188

Q.16



(A) $\frac{U}{15}$ (B) $\frac{W}{23}$

(C) $\frac{X}{24}$ (D) $\frac{W}{24}$

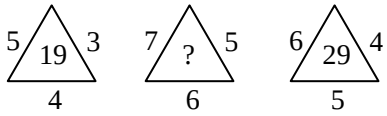
Q.17

6	11	25
8	6	16
12	5	?

(A) 18 (B) 16

(C) 12 (D) 10

Q.18



(A) 25 (B) 37

(C) 41 (D) 47

Q.19

Z4	X3	V9
A6	C2	?
T5	R4	P15

(A) E10 (B) E12

(C) S11 (D) S12

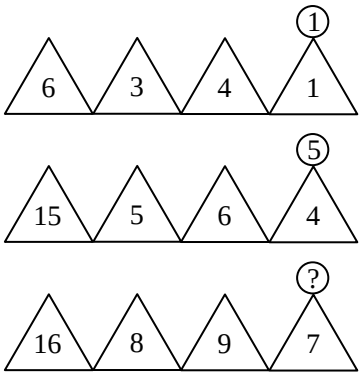
Q.20

2	10	11	15
9	8	5	20
7	9	?	10
6	9	11	15

(A) 17 (B) 20

(C) 15 (D) 21

Q.21



(A) 5 (B) 6

(C) 4 (D) 3

Q.22

BD_3	CE_5	DF_{15}
EG_2	FH_4	GI_8
HJ_4	IK_6	?

(A) JL_{24} (B) IJ_{18}

(C) JK_{18} (D) JL_{12}

Q.23

13	54	?
7	45	32
27	144	68

(A) 42 (B) 36

(C) 6 (D) 4

Answer Key

Q.No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	C	A	B	D	D	A	A	B	C	A	C	C	D	D
Q.No	16	17	18	19	20	21	22	23							
Ans.	C	B	C	B	A	C	A	D							