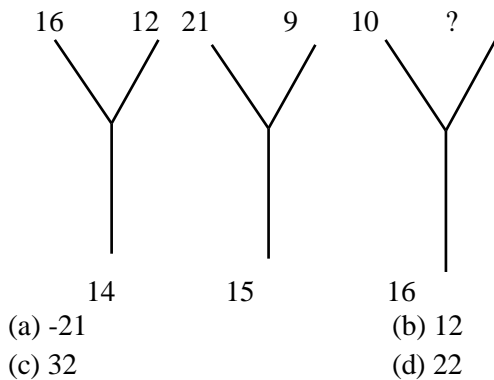


**DIRECTIONS:** In the following questions find missing number.

1.

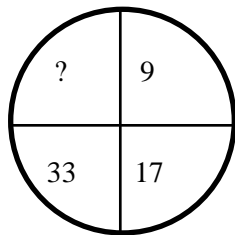


2.

1	2	3	2	10	12
2	5	12	10	16	13
1	2	1	?	10	24

(a) 5 (b) 11  
(c) 13 (d) 8

3.



4.

2 7 9  
7 3 4  
9 8 ?  
126 168 216

(a) 8 (b) 3  
(c) 6 (d) 36

5.

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

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

6.

1	2	3
4	5	6
7	8	9

27	38	?
----	----	---

- (a) 49 (b) 51  
(c) 50 (d) 52

7.

3	4	5
2	3	4
1	2	3
14	29	?

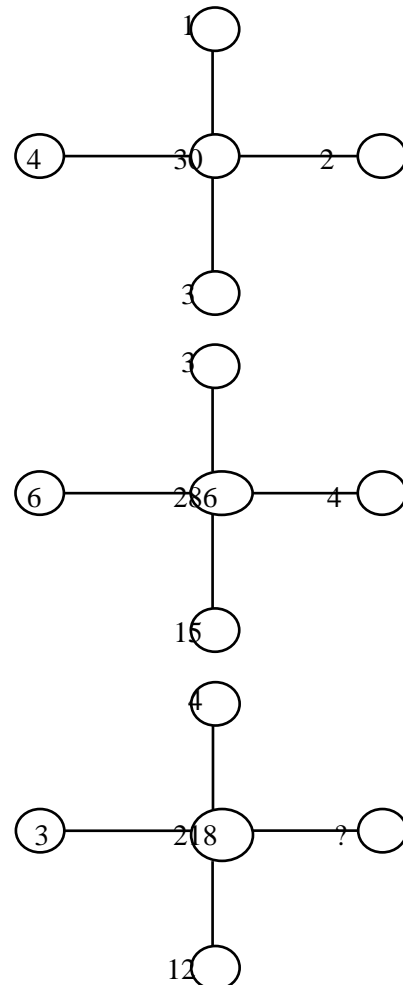
- (a) 50 (b) 30  
(c) 40 (d) 32

8.

8	9	10
5	4	3
28	?	16
12	25	14

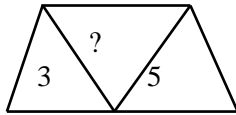
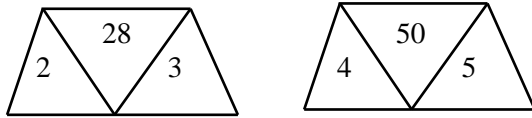
- (a) 28 (b) 11  
(c) 32 (d) 18

9.



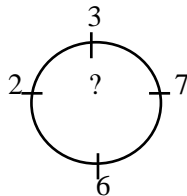
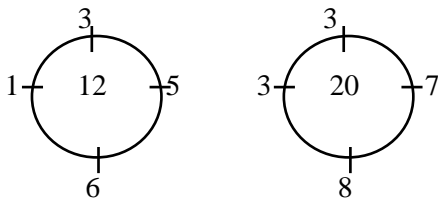
- (a) 6 (b) 7  
(c) 9 (d) 12

10.



- (a) 35 (b) 40  
(c) 49 (d) 53

11.



- (a) 10 (b) 15  
(c) 20 (d) 25

12.

21	24	36
11	14	12
3	?	4
77	112	108

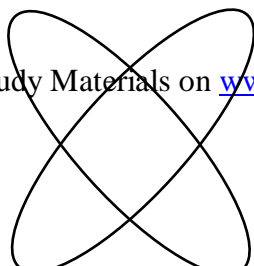
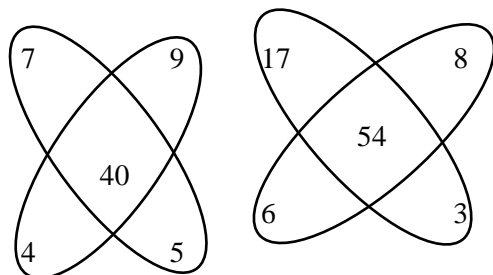
- (a) 2 (b) 4  
(c) 3 (d) 5

13.

5	9	15
16	29	?
49	89	147

- (a) 45 (b) 48  
(c) 51 (d) 54

14.



10                      21

                                 ?  
                                 3                      6

- (a) 60 (b) 62  
(c) 64 (c) 66

15.  $\begin{pmatrix} 2 & 3 & 1 \\ 1 & 2 & -1 \\ 3 & 4 & ? \end{pmatrix}$

- (a) 5 (b) 2  
(b) 1 (d) 4

16.

1	2	3
2	3	4
6	10	?

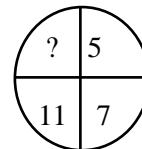
- (a) 18 (b) 24  
(b) 14 (d) 16

17.

3	4	5
4	5	3
4	3	?
48	60	105

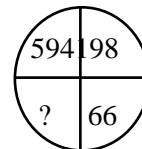
- (a) 2 (b) 6  
(b) 7 (d) 9

18.



- (a) 1 (b) 9  
(b) 12 (d) 17

19.

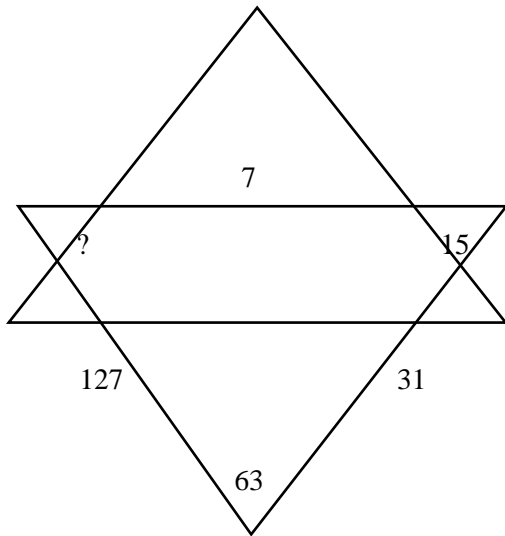


- (a) 22 (b) 33  
(c) 11 (d) 44

20.

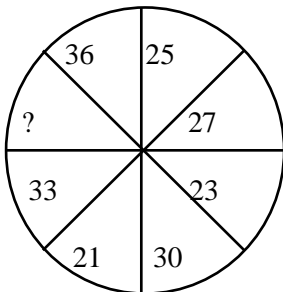
6	15	20
8	4	5
3	5	20
51	65	?

- (a) 56 (b) 120  
(c) 51 (d) 44



- (a) 190 (b) 255  
(c) 221 (d) 236

21.

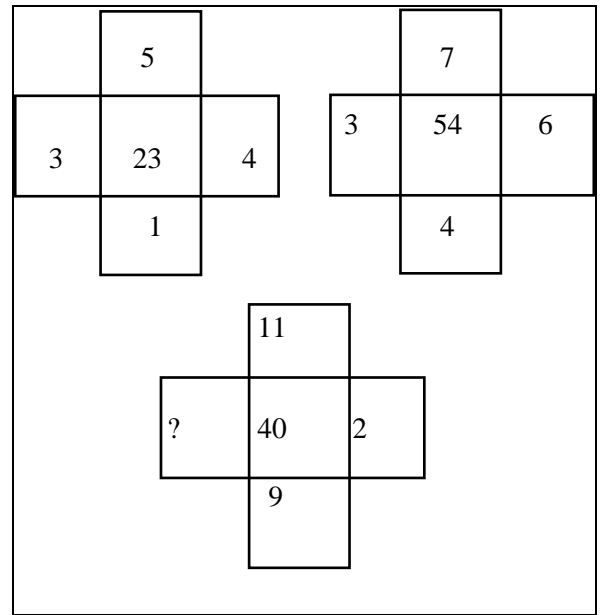


- (a) 35 (b) 32  
(c) 22 (d) 19

22.

12	16	18
16	16	20
5	7	?
197	263	356

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



- (a) 4 (b) 1  
(c) 2 (d) 3

23. The diagram below is a 'magic square' in which all rows and columns and both diagonals add up to 34. Find  $xy$

1	8	13	12
14			
4	x	16	y
15			

- (a) 77 (b) 60  
(c) 45 (d) 63

24.  $\begin{matrix} 8 & 10 & 12 \\ 5 & 7 & 9 \\ 12 & 14 & ? \end{matrix}$

- (a) 16 (b) 15  
(c) 18 (d) 17

25.

1	12	10
15	2	?
8	5	3

- (a) 9 (b) 11  
(c) 4 (d) 6

26.

6	9	15
8	12	20
4	6	?

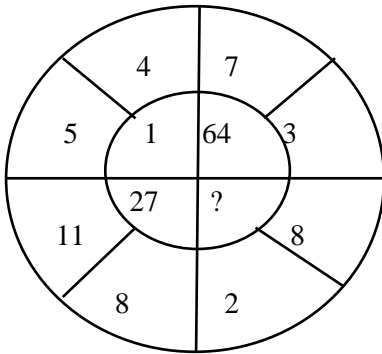
- (a) 5 (b) 10  
(c) 15 (d) 21

27.

72	24	6
96	16	12
108	?	18

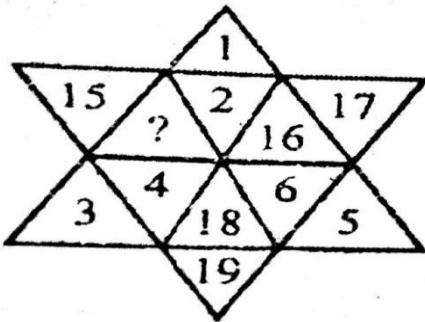
- (a) 12 (b) 16  
(c) 18 (d) 20

28.



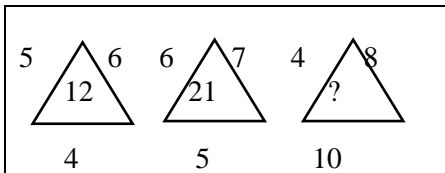
- (a) 0 (b) 8  
(c) 125 (d) 216

29.



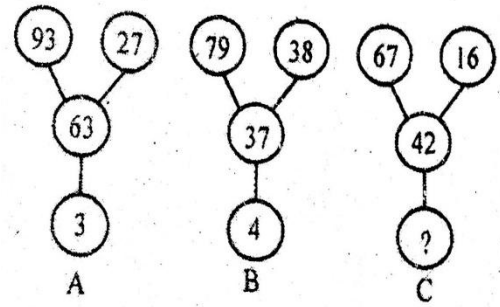
- (a) 13 (b) 14  
(c) 20 (d) 21

30.



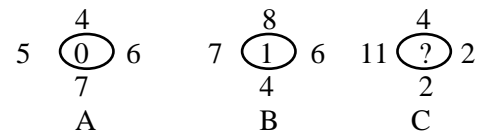
- (a) 14 (b) 22  
(c) 32 (d) 320

31.



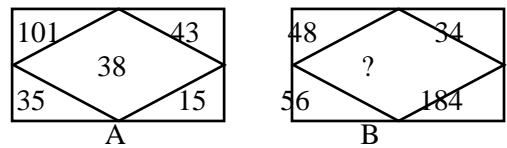
- (a) 5 (b) 6  
(c) 8 (d) 9

32.



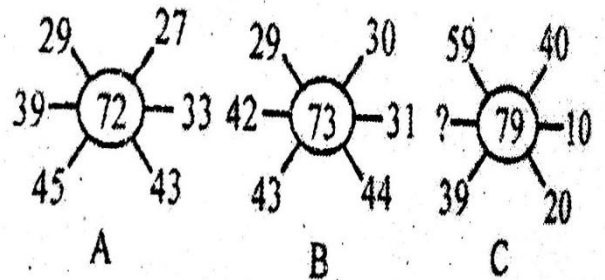
- (a) 0 (b) 2  
(c) 11 (d) 12

33.



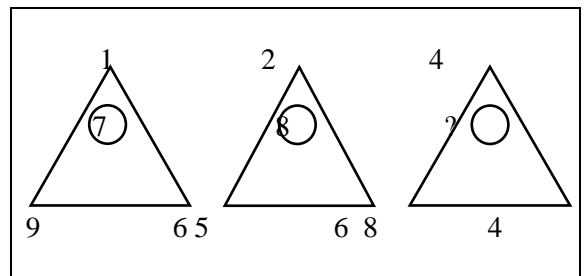
- (a) 127 (b) 142  
(c) 158 (d) 198

34.



- (a) 49 (b) 50  
(c) 60 (d) 69

35.



- (a) 6 (b) 9  
(c) 10 (d) 11

36.

Z	?	S
R	O	?
?	G	C

- (a) WJK (b) KWT  
(c) WKJ (d) JKW

37.

B	G	N
D	J	R
G	N	?

- (a) U (b) V  
(c) W (d) X

38.

2	4	0
1	2	4
3	1	3
36	?	91

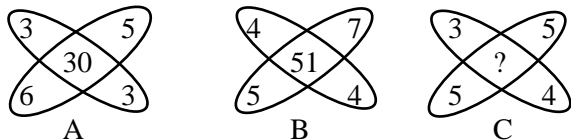
- (a) 24 (b) 48  
(c) 59 (d) 73

39.

	36		9		25
49	<span style="border: 1px solid black; padding: 2px;">26</span>	64	81	<span style="border: 1px solid black; padding: 2px;">21</span>	25
	25		16		36
	A		B		C

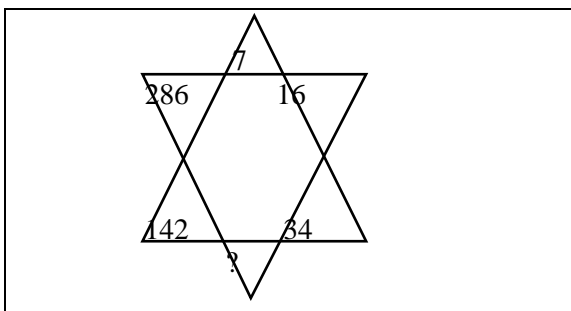
- (a) 19 (b) 23  
(c) 25 (d) 31

40.

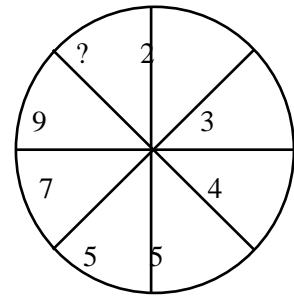


- (a) 47 (b) 45  
(c) 37 (d) 35

41.



- (a) 72 (b) 70  
(c) 68 (d) 66



- (a) 10 (b) 11  
(c) 12 (d) 13

42.

4	9	2
3	5	7
8	1	?

- (a) 9 (b) 6  
(c) 15 (d) 14

43.

7	6	6
8	6	?
3	4	5
168	144	120

- (a) 8 (b) 10  
(c) 5 (d) 4

44.

8	5	6
3	7	5
1	4	2
74	90	?

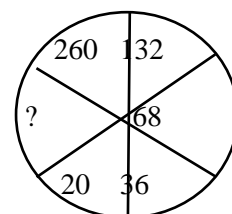
- (a) 65 (b) 85  
(c) 52 (d) 76

45.

22	46	24
27	58	31
32	68	?

- (a) 46 (b) 36  
(c) 32 (d) 38

46.



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

47.

7	9	8
---	---	---

2	4	3
5	7	6
16	32	?

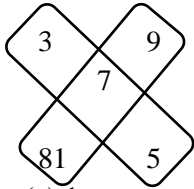
- (a) 17  
(c) 47

- (b) 23  
(d) 73

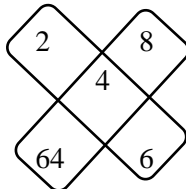
(c) 6

(d) 16

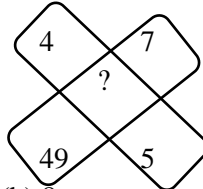
48.



(a) 1



(b) 8



**ANSWER KEY**

1	(d)	7	(a)	13	(b)	19	(a)	25	(c)	31	(b)	37	(d)	43	(b)	49	(a)
2	(c)	8	(b)	14	(b)	29	(b)	26	(a)	32	(c)	38	(c)	44	(b)	50	(b)
3	(d)	9	(b)	15	(a)	21	(b)	27	(c)	33	(d)	39	(c)	45	(b)	51	(c)
4	(c)	10	(b)	16	(c)	22	(d)	28	(b)	34	(c)	40	(d)	46	(d)		
5	(a)	11	(b)	17	(c)	23	(b)	29	(a)	35	(b)	41	(d)	47	(a)		
6	(b)	12	(c)	18	(d)	24	(c)	30	(d)	36	(d)	42	(c)	48	(b)		

## Hints and Explanation :

1. (d)  $(16 + 12) \div 2 = 14$   
 $(21 + 9) \div 2 = 15$   
 $(10 + x) \div 2 = 16$   
 $\Rightarrow x = 22$

2. (c)

1	2	3	2	10	12
2	5	12	10	16	13
1	2	1	?	10	24
4	9	16	25	36	49

Hence, the missing term is  $25 - (2 + 10) = 13$ .

3. (d)  $9 \times 2 - 1 = 17$   
 $17 \times 2 - 1 = 33$

$33 \times 2 - 1 = 65$

4. (c)  $2 \times 7 \times 9 = 126$

$7 \times 3 \times 8 = 168$

$9 \times 4 \times x = 216$

$\Rightarrow x = 6$

5. (a)  $\sqrt{169} + \sqrt{64} + \sqrt{81} = 30$

$\sqrt{625} + \sqrt{x} + \sqrt{49} = 50 \Rightarrow x = 324$

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

6. (b)  $4 \times 7 - 1 = 27$

$5 \times 8 - 2 = 38$

$9 \times 6 - 3 = 51$

7. (a)  $3^2 + 2^2 + 1^2 = 14$

$4^2 + 3^2 + 2^2 = 29$

$5^2 + 4^2 + 3^2 = 50$

8. (b)  $8 \times 5 - 12 = 28$

$9 \times 4 - 25 = 11$

$10 \times 3 - 14 = 16$

9.  $4^2 + 1^2 + 2^2 + 3^2 = 30$

$6^2 + 3^2 + 4^2 + 15 = 286$

$3^2 + 4^2 + x + 12^2 = 218$

$169 + x = 218$

$x = 218 - 169 = \sqrt{49}$

10.  $23 + 5 = 28$

$45 + 5 = 50$

$35 + 5 = 40$

11. (b)  $(5 - 1) \times (6 - 3) = 12$

$(7 - 3) \times (8 - 3) = 20$

$(7 - 2) \times (6 - 3) = 15$

12. (c) As,  $3 \times 7 = 21, 11 \times 7 = 77$

$4 \times 9 = 36, 12 \times 9 = 108$

Therefore,  $14 \times 8 = 112$

$? \times 8 = 24$

$? = 3$

13. (b)  $5 \times 3 + 1 = 16$        $9 \times 3 + 2 = 29$

$16 \times 3 + 1 = 49$

$29 \times 3 + 2 = 89$

$15 \times 3 + 3 = 48$

$48 \times 3 + 3 = 147$

14. (b)  $(7 + 9 + 5 + 4) \times 2 - 10 = 40$

$(17 + 8 + 3 + 6) \times 2 - 14 = 54$

$(10 + 21 + 6 + 3) \times 2 - 18 = 62$

15. (a)  $2^2 - 3 = 1$

$1^2 - 2 = -1$

$3^2 - 4 = 5$

16. (c)  $(1 + 2) \times 2 = 6$

$(2 + 3) \times 2 = 10$

$(3 + 4) \times 2 = 14$

17. (c)  $3 \times 4 \times 4 = 48$

$4 \times 5 \times 3 = 60$

$4 \times 3 \times 3 = 105$

$x = 7$

18. (d)  $5 + 2 = 7$

$7 + 4 = 11$

$11 + 6 = 17$

19. (a)  $594 \div 198 = 3$

$198 \div 66 = 3$

$66 \div x = 3$

$x = 22$

20. (b)  $6 \times 8 + 3 = 51$

$15 \times 4 + 5 = 65$

$20 \times 5 + 20 = 120$

21. (b)  $7 \times 2 + 1 = 15$

$15 \times 2 + 1 = 31$

$31 \times 2 + 1 = 63$

$63 \times 2 + 1 = 127$

$127 \times 2 + 1 = 255$

22. (d)  $25 + 27 = 52$

$23 + 30 = 53$

$21 + 33 = 54$

$36 + x = 55$

23.  $x = 19$   
 (b)  $12 \times 16 + 5 = 197$   
 $16 \times 16 + 7 = 263$   
 $18 \times 20 + x = 356$   
 $x = -4$
24. (c)  $5 \times 4 + 3 \times 1 = 23$   
 $7 \times 6 + 3 \times 4 = 54$   
 $11 \times 2 + 9 \times x = 40$   
 $x = 2$
25. (c)
- |    |    |    |    |
|----|----|----|----|
| 1  | 8  | 13 | 12 |
| 14 | 11 | 2  | 7  |
| 4  | 5  | 16 | 9  |
| 15 | 10 | 3  | 6  |
26. (a)
- $\begin{matrix} 8 \\ 5 \\ 12 \end{matrix} \left. \begin{matrix} -3 \\ +7 \end{matrix} \right\}$

$\begin{matrix} 10 \\ 7 \\ 14 \end{matrix} \left. \begin{matrix} -3 \\ +7 \end{matrix} \right\}$

$\begin{matrix} 12 \\ 9 \\ \boxed{16} \end{matrix} \left. \begin{matrix} -3 \\ +7 \end{matrix} \right\}$
27. (c) This is a multiplication magic square. The product of each set of three numbers in any column or row is the constant 120.
28. (b) In the first row,  $6 \times \frac{3}{2} = 9$ ,  $6 \times \frac{5}{2} = 15$   
 In the second row,  $8 \times \frac{3}{2} = 12$ ,  $8 \times \frac{5}{2} = 20$ .  
 In the third row, missing number  
 $= 4 \times \frac{5}{2} = 10$
29. (a) In the first row,  $72 \div \left(\frac{24}{2}\right) = 72 \div 12 = 6$   
 In the second row,  $96 \div \left(\frac{16}{2}\right) = 96 \div 8 = 12$   
 Let the missing number in the third row be  $x$ .  
 Then,  $108 \div \left(\frac{x}{2}\right) = 18 \Rightarrow \frac{x}{2} = \frac{108}{18} = 6 \Rightarrow x = 12$ .
30. (d) Clearly,  $(5 - 4)^3 = 1$ ;  
 $(7 - 3)^3 = 64$ ;  $(11 - 8)^3 = 27$   
 So, missing number  $= (8 - 2)^3 = 6^3 = 216$ .
31. (b) The given figure contains numbers 1 to 6 in three alternate segments, the smaller number being towards the outside and the numbers 14 to 19 in the remaining three alternate segments with the smaller number towards the inside.

32. (c) The number inside the triangle is obtained by dividing the product of the numbers outside of the triangle by 10. Thus,  
 In I triangle,  $(5 \times 6 \times 4) \div 10 = 12$   
 In II triangle,  $(6 \times 7 \times 5) \div 10 = 21$   
 $\therefore$  In III triangle, missing number  
 $= (4 \times 8 \times 10) \div 10 = 32$ .
33. (d) In fig. (A),  $93 - (27 + 63) = 3$   
 In fig. (B),  $79 - (38 + 37) = 4$   
 In fig. (C), missing number  
 $= 67 - (16 + 42) = 9$ .
34. (c) The number inside the circle is equal to the difference between the sum of the numbers at the extremities of the horizontal diameter and the sum of numbers at the extremities of the vertical diameter.  
 In fig. (A),  $(5 + 6) - (7 + 4) = 0$   
 In fig. (B),  $(7 + 6) - (8 + 4) = 1$ .  
 In fig. (C) Missing number  
 $= (11 + 2) - (0 + 2) = 11$
35. (b) In fig. (A),  
 $(101 + 15) - (35 + 43) = 116 - 78 = 38$ .  
 In fig. (B), Missing number  $= (48 + 184) - (56 + 34) - 232 - 90 = 142$ .
36. (d) The sum of numbers at the extremities of the three line segments in each figure is same.  
 In fig. (A),  $39 + 33 = 29 + 43 - 27 + 45 = 72$   
 In fig. (B),  $42 + 31 = 29 + 44 = 30 + 43 = 73$  Let the missing number in fig. (C) be  $x$ .  
 Then,  $x + 10 = 59 + 20 = 40 + 39 - 79$   
 or  $x = 69$ .
37. (d) When we arrange the digits on the vertices of every triangle separately, starting from upper vertices, we get numbers 196, 256 and 484 respectively.  
 Now,  $\frac{\sqrt{196}}{2} = 7$ ,  $\frac{\sqrt{256}}{2} = 8$   
 Hence,  $\frac{\sqrt{484}}{2} = 11$
38. (c) The letter in the second column is three steps behind that in the first column, and the letter in the third column is four steps behind that in the second column. So, the missing letter in the first



row will be three steps behind Z, which is W. The missing letter in the second row will be four steps behind O, which is K. The missing letter in the third row will be three steps ahead of G, which is J.

39. (c) The letters in the first row follow the sequence +5, +7.

The letters in the second row follow the sequence +6, +8.

In the third row, the first letter G moves 7 steps forward to give the second letter N. Clearly, the missing letter will be 9 steps ahead of N i.e. W.

40. (d) Clearly,  $(1^{\text{st}} \text{ row})^3 + (2^{\text{nd}} \text{ row})^3 + (3^{\text{rd}} \text{ row})^3 = 4^{\text{th}} \text{ row}$

So, in the first column,

$$2^3 + 1^3 + 3^3 = 8 + 1 + 27 = 36$$

In the third column,

$$0^3 + 4^3 + 3^3 = 0 + 64 + 27 = 91$$

$$\therefore \text{In the second column, missing number} = 4^3 + 2^3 + 1^3 = 64 + 8 + 1 = 73$$

41. (d) In fig (A),  $6^2 = 36, 8^2 = 64, 5^2 = 25, 7^2 = 49$  and  $6+8+5+7=26$

In fig. (B),  $3^2 = 9, 5^2 = 25, 4^2 = 16, 9^2 = 81$  and  $3+5+4+9=21$

In fig(C),  $5^2 = 25, 12^2 = 144, 6^2 = 36, 8^2 = 64$ .

So, missing number =  $5 + 12 + 6 + 8 = 31$ .

42. (c) In fig(A),  $(3 \times 3) + (6 \times 5) = 39$

In fig (B),  $(4 \times 4) + (5 \times 7) = 51$

$$\therefore \text{In fig (C), missing number} = (3 \times 4) + (5 \times 5) = 37$$

43. (b) Clearly, we have:

$$7 \times 2 + 2 = 16; 16 \times 2 + 2 = 34 \text{ and so on.}$$

$$\text{So missing number} = 34 \times 2 + 2 = 70$$

44. (b) The numbers in the right half form the series: 2,3,4,5. The numbers in the left half form the series: 5,7,9,11.

45. (d)  $7 \times 8 \times 3 = 168$

$$6 \times 4 \times 4 = 144$$

$$6 \times x \times 5 = 120$$

$$\therefore 30x = 120$$

$$x = \frac{120}{30} = 4$$

46. (a)  $8^2 + 3^2 + 1^2 = 74$

$$5^4 + 7^2 + 4^2 = 90$$

$$6^2 + 5^2 + 2^2 = \boxed{65}$$

47. (b)  $46 - 22 = 24$

$$58 - 27 = 31$$

$$68 - 32 = \boxed{36}$$

48. (a)  $\textcircled{12} \xrightarrow{+8} 20 \xrightarrow{+16} 36 \xrightarrow{+32} 68 \xrightarrow{+64} 132 \xrightarrow{+128} 260$

49. (b)  $7 + 2^2 + 5 = 16$

$$9 + 4^2 + 7 = \textcircled{32}$$

$$8 + 3^2 + 6 = 23$$

50. (c)  $3 + 9 - 5 = 7$

$$2 + 8 - 6 = 4$$

$$4 + 7 - 5 = \textcircled{6}$$

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