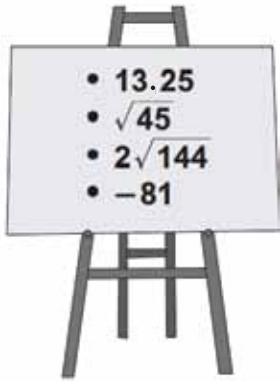




**Q9:** Which of the following number on the board should be removed in order to make all of them rational?



- A) 13.25      B)  $\sqrt{45}$       C)  $2\sqrt{144}$       D) -81

**Q10:** Which of the following is equal to  $6\sqrt{2}$ ?

- A)  $\sqrt{6}$       B)  $\sqrt{12}$       C)  $\sqrt{24}$       D)  $\sqrt{72}$

**Q11:** Find the value of  $x$  in the following equation

$$\frac{x}{2} - 1 = \frac{x}{3} + 2.$$

- A) 6      B) 12      C) 18      D) 21

**Q12:**  $4 \times 3^3 - 3^2 + 5 = ?$

- A) 104      B) 96      C) 81      D) 72

**Q13:** 
$$\frac{\left(1 - \frac{1}{2}\right)}{\left(1 + \frac{1}{2}\right)} + \frac{\left(2 - \frac{1}{2}\right)}{\left(2 + \frac{1}{2}\right)} \times \frac{\left(3 - \frac{1}{2}\right)}{\left(3 + \frac{1}{2}\right)} \times \frac{\left(4 - \frac{1}{2}\right)}{\left(4 + \frac{1}{2}\right)} = ?$$

- A)  $\frac{2}{3}$       B)  $\frac{1}{3}$       C)  $\frac{2}{9}$       D)  $\frac{1}{9}$

**Q14:** The ratio of two numbers is  $\frac{3}{5}$ . What will be the new ratio if both numerator and denominator are multiplied by the same number?

- A)  $\frac{3}{5}$       B)  $\frac{5}{3}$   
 C)  $\frac{9}{25}$       D) None of these

**Q15:** If  $\frac{2x}{x^2 + 1} = \frac{2}{x + 2}$ , what is the value of  $x$ ?

- A)  $\frac{1}{4}$       B)  $-\frac{1}{4}$       C)  $\frac{1}{2}$       D) 0

**Q16:** What will be the number at the center of the 6th row if the following pattern continues?

1 \_\_\_\_\_ 1st row  
 3 5 7 \_\_\_\_\_ 2nd row  
 9 11 13 15 17 \_\_\_\_\_ 3rd row  
 :  
 :

- A) 41      B) 61      C) 71      D) 85

**Q17:** Simplify  $\frac{8^4 \times 4^2}{2^8}$

- A)  $2^{12}$       B)  $2^8$       C)  $2^6$       D)  $2^4$

**Q18:** What is the value of  $c$  if  $a + b = 12$ ,  
 $ac + b = 18$  and  $bc + a = 6$ ?

- A) 7      B) 4      C) 2      D) 1

**Q19:** How does the area of a rectangle change if both the length and the width of the original rectangle are tripled?

- A) The area is tripled.  
B) The area is six times larger.  
C) The area is nine times larger.  
D) The area remains the same.

**Q20:** The product of four different natural numbers is 360. What is the maximum value of the sum of these numbers?

- A) 68      B) 66      C) 52      D) 39

**Q21:** Which of the following numbers is the smallest positive integer that it is added to 133 to get a perfect square number?

- A) 1      B) 11      C) 21      D) 31

**Q22:** Rs. 5500 was divided among three boys. The first boy got Rs. 400 less than the second boy and the second boy got Rs. 700 more than the third boy. How much money did the first boy get?

- A) Rs. 1800      B) Rs. 1900  
C) Rs. 2100      D) Rs. 2200

**Q23:** Simplify  $\frac{9x^2 - 15x}{6x - 10}$ .

- A)  $\frac{x-8}{6}$       B)  $\frac{3x}{2}$       C)  $3x-5$       D)  $\frac{3}{2}$

**Q24:** If 400 is increased by 20% and result is decreased by 20% then what is the new number?

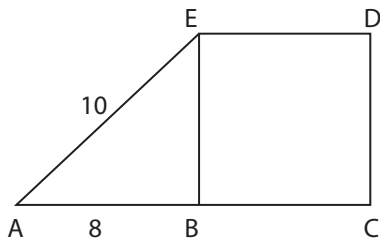
- A) 384      B) 382      C) 380      D) 400



**Q32:**  $2 + 4 + 6 + 8 + \dots + 30 = ?$

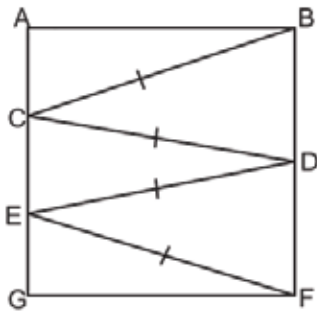
- A) 230      B) 240      C) 250      D) 260

**Q33:** In the following figure, BCDE is a square and ABE is a triangle. What is the length of AC if the perimeter of triangle and the square is equal?



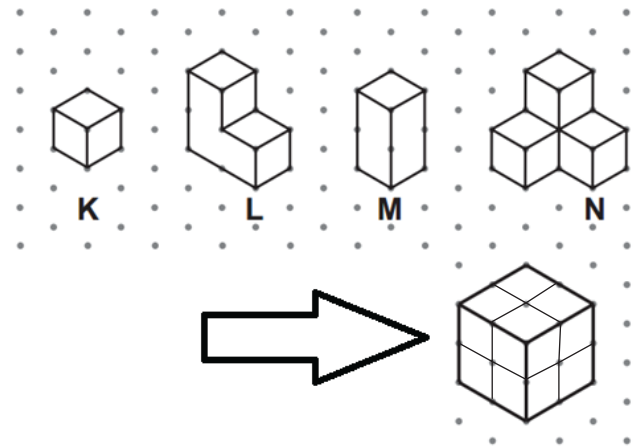
- A) 12      B) 14      C) 15      D) 16

**Q34:** ABFG is a square, if  $\angle ABC = x$  and  $\angle ACB = x + 4$  then what is  $\angle GED$ ?



- A) 43      B) 47      C) 86      D) 133

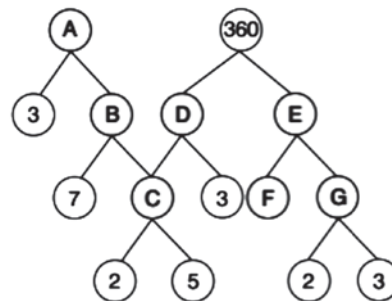
**Q35:** Which parts should be joined in order to get the cube in the figure?



- A) K, L, N      B) L, M, N  
C) K, L, M      D) K, M, N

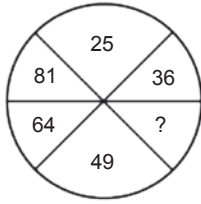
**Q36:** According to the following "multiplication tree", what is the value of

$$A + B - (C + D) + (E + F - G)?$$



- A) 236      B) 248      C) 258      D) 254

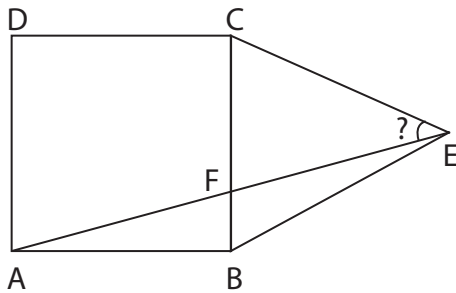
**Q37:** The numbers in the circle below are placed with a certain pattern.



Which number can replace the question mark?

- A) 169      B) 144      C) 125      D) 121

**Q38:** In the following figure, ABCD is a square and BEC is an equilateral triangle. What is  $\angle AEC$ ?



- A)  $30^\circ$       B)  $45^\circ$       C)  $60^\circ$       D)  $75^\circ$

**Q39:** The average of  $x$ ,  $y$  and  $z$  is 23 and the average of  $x$  and  $z$  is 13.

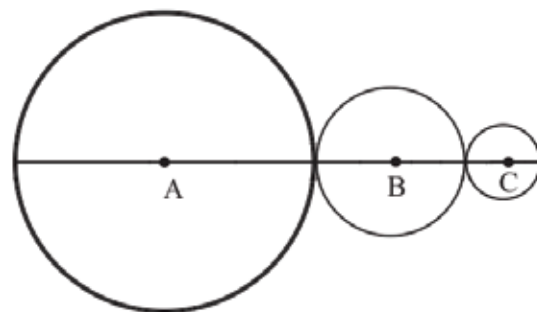
What is the value of  $y$ ?

- A) 16      B) 18      C) 33      D) 43

**Q40:** A basketball team had a ratio of wins to losses of 3:1. When the team won next six matches, then the ratio of wins to losses became 5:1. How many matches had the team won before winning six matches?

- A) 3      B) 6      C) 9      D) 15

**Q41:** In the figure below, the radius of the circle with center  $A$  is twice the radius of the circle with center  $B$  and four times the radius of the circle with center  $C$ . If the sum of the areas of the three circles is  $84\pi$ , what is the length of  $AC$ ?

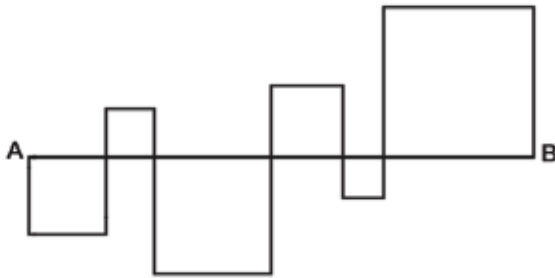


- A) 18      B) 34      C) 36      D) 38

**Q42:** When 23 is divided by 3, the remainder is  $x$ .  
What is the remainder when 23 is divided by  $2x$ ?

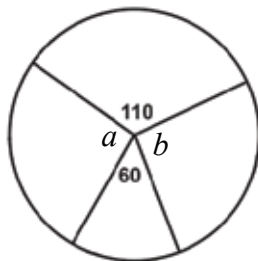
- A) 1            B) 2            C) 3            D) 4

**Q43:** The figure below is formed by 6 different squares. What is the perimeter of the figure if the length of AB is 32 cm?



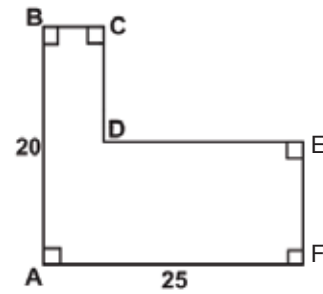
- A) 48 cm                                    B) 72 cm  
C) 96 cm                                    D) 128 cm

**Q44:** What is sum of the measurement of the angles  $a$  and  $b$ ?



- A) 85            B) 110            C) 170            D) 190

**Q45:** What is the perimeter of ABCDEF?



- A) 75            B) 80            C) 85            D) 90

**Q46:** Which of the following is correct if

$$a = 1\frac{7}{8}, b = \frac{14}{9}, c = 1\frac{3}{4} ?$$

- A)  $a > b > c$     B)  $a > c > b$     C)  $b > c > a$     D)  $c > a > b$

**Q47:** What is the total number of digits in the following operation?

$$8^3 \times 5^9$$

- A) 999            B) 99            C) 10            D) 9

**Q48:** Which of the following is the smallest for the value of  $x = -3$ ?

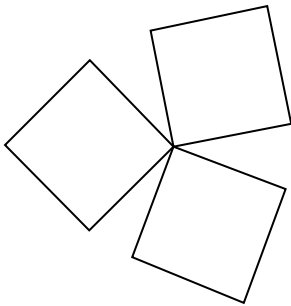
A)  $x^2 - 3$

B)  $(x-3)^2$

C)  $x^2$

D)  $(x+3)^2$

**Q49:** The shape below is formed by three congruent squares.



What is the area of the figure in  $\text{cm}^2$  if its perimeter is 60 cm?

A) 25

B) 50

C) 75

D) 80

**Q50:** There are 832 rabbits in a zoo. The number of rabbits doubles every month. How many months ago there were only 52 rabbits in the zoo?

A) 3

B) 4

C) 5

D) 6