**Chapter - 19**

 **AREA AND PERIMETER**

**Triangles:**-

1. **Equilateral Triangle**

Area = 

Height = 

Perimeter = 3a

1. **Isosceles Triangle**

Area = 

Height = ****

1. **Scalene Triangle :**

**** Area = 

Perimeter = a+ b + c

Semi perimeter = 

Area = 

****

1. **Right Angled Triangle**

Area = 

d2= h2 + b2 (Pythagoras theorem)

**Quadrilateral : -**

1. **Parallelogram**

Area = Base × Height

= a × h

Perimeter = 2 (a + b)

****

1. **Trapezium**

Area = 1/2 (Sum of parallel sides × height)

 = 1/2 (a+b) h

1. **Rhombus**

Area = 

Side = 

Perimeter = 4a



1. **Rectangle :**

d

Area = l × b

Perimeter = 2 (l+b)

Diagonal (d) = 

Area of 4 walls or rectangular room

= 2 × (l + b) × h

1. **Square :**

Area = a2

Perimeter = 4a

Diagonal = 

**Regular Polygon :**

If each side of regular Polygon of n side = a

Then,

1. Area of regular pentagon = 
2. Area of regular hexagon = 
3. Area of regular octagon = 
4. Each exterior angle = 
5. Each interior angle = 
6. Number of Diagonals = 

Circle :

Area = 

Circumference (Perimeter ) = 

r



Area of circular ring = 

**Q.1.** One side of a rectangular field is 4 metres and its diagonal is 5 metres. The area of the field is:

**Ans.1.** l2+b2= (diagonal)2 or b2 = [(diagonal)2 - l2.

b2 = (52 - 42 ) = 9 and therefore b = 3m

 Hence, the area of the field = (4×3) m2

 = 12 m2

**Q.2.** The perimeter of rectangle is 82 m and its area is 400 m2 . the breadth of the rectangle is :

**Ans.2.** Let length = x metres and breadth = y metres.

 then, 2(x+y) = 82 or x+y = 41

 or x = (41-y)

 orxy = 400 or (41-y) y = 400.

 or y2- 41y + 400 = 0

 or **(**y-16) (y - 25) = 0

 y = 16 or y = 25

Hence, breadth = 16 m.

**Q.3.** A room 5m × 4m is to be carpeted leaving a margin of 25cm from each wall. if the cost of the carpet is Rs. 80 per m2, the cost of carpeting the room will be :

**Ans.3.** Area of the carpet = (4.5 ×3.5) m2.

 Cost of the carpet = Rs. (80×4.5×3.5)

 = Rs. 1260.

**Q.4.** Area of four walls of a room is 77m2 . The length and breadth of the room are 11.5 m and 3.5 m respectively. The height of the room is :

**Ans.4.** 2(11.5+3.5) × h = 77  h = 2.5m.

**Q.5.** The area of a parallelogram is 72 cm2 and its altitude is twice the corresponding base. Then the length of the base is :

**Ans.5.** Let base = x cm & altitude = 2x cm.

 x × 2x = 72 ****x2 = 36 or x = 6 cm

 Hence, base = 6 cm

**Q.6.** The perimeter of a rhombus is 52 m while its longer diagonal is 24 m . Its other diagonal is :

**Ans.6.** Side of rhombus = 52÷4=13 ,

 x2 = 25 , x=5 m.

 another diagonal =10 m.