**Questions on Mensuration with Solutions**

**1. A circle has a radius of 21 cm. Find its circumference and area. (Use π = 22/7)**

Solution: We know,

Circumference of circle = 2πr = 2 x (22/7) x 21 = 2 x 22 x 3 = 132 cm

Area of circle = πr2 = (22/7) x 212 = 22/7 x 21 x 21 = 22 x 3 x 21

Area of circle with radius, 21cm = 1386 cm2

**2. If one side of a square is 4 cm, then what will be its area and perimeter?**

Solution: Given,

Length of side of square = 4 cm

Area = side2 = 42 = 4 x 4 = 16 cm2

Perimeter of square = sum of all its sides

Since, all the sides of the square are equal, therefore;

Perimeter = 4+4+4+4 = 16 cm

**3. Suppose a quadrilateral having a diagonal of length 10 cm, which divides the quadrilateral into two triangles and the heights of triangles with diagonals as the base, are 4 cm and 6 cm. Find the area of the quadrilateral.**

Solution: Given,

Diagonal, d = 10 cm

Height of one triangle, h1 = 4cm

Height of another triangle, h2 = 6cm

Area of quadrilateral = ½ d(h1+h2) = ½ x 10 x (4+6) = 5 x 10 = 50 sq.cm.

**4. A rhombus having diagonals of length 10 cm and 16 cm, respectively. Find its area.**

Solution: d1 = 10 cm

d2 = 16 cm

Area of rhombus = ½ d1 d2

A = ½ x 10 x 16

A= 80 cm2

**5. The area of a trapezium shaped field is 480 m2, the distance between two parallel sides is 15 m and one of the parallel sides is 20 m. Find the other parallel side.**

Solution: One of the parallel sides of the trapezium is a = 20 m, let another parallel side be b, height h = 15 m.

The given area of trapezium = 480 m2

We know, by formula;

Area of a trapezium = ½ h (a+b)

480 = ½ (15) (20+b)

20 + b = (480×2)/15

b = 64 – 20 = 44 m

**6. The height, length and width of a cuboidal box are 20 cm, 15 cm and 10 cm, respectively. Find its area.**

Solution: Total surface area = 2 (20 × 15 + 20 × 10 + 10 × 15)

TSA = 2 ( 300 + 200 + 150) = 1300 cm2

**7. If a cube has its side-length equal to 5cm, then its area is?**

Solution: Given,

l = 5 cm

Area = 6l2 = 6 x 5 x5 = 150 sq.cm

**8. Find the height of a cylinder whose radius is 7 cm and the total surface area is 968 cm2.**

Solution: : Let height of the cylinder = h, radius = r = 7cm

Total surface area = 2πr (h + r)

TSA = 2 x (22/7) x 7 x (7+h) = 968

h = 15 cm

**9. Find the height of a cuboid whose volume is 275 cm3 and base area is 25 cm2.**

Solution: Volume of cuboid = l × b × h

Base area = l × b = 25 cm2

Hence,

275 = 25 × h

h = 275/25 = 11 cm

**10. A rectangular piece of paper 11 cm × 4 cm is folded without overlapping to make a cylinder of height 4 cm. Find the volume of the cylinder.**

Solution: Length of the paper will be the perimeter of the base of the cylinder and width will be its height.

Circumference of base of cylinder = 2πr = 11 cm

2 x 22/7 x r = 11 cm

r = 7/4 cm

Volume of cylinder = πr2h = (22/7) x (7/4)2 x 4

= 38.5 cm3