

4. Draw a circle of radius 3.5 cm. From a point 9 cm away from its centre, construct the pair of tangents to the circle.
5. Draw a triangle ABC in which AB = 4.5 cm and BC = 8 cm and $\angle ABC = 80^\circ$. Construct a triangle similar to $\triangle ABC$ with scale factor $\frac{3}{8}$. Justify the construction
6. Construct an equilateral triangle of side 4.8 cm and then another triangle whose sides are $\frac{7}{4}$ of the corresponding sides of the first triangle.

AREAS RELATED TO CIRCLES

MCQ

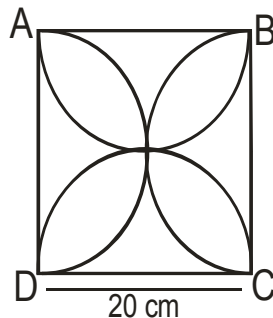
1. If the perimeter and area of a circle are numerically equal, then radius is
 (a) 2 units (b) π units (c) 4 units (d) 7 units
2. Area of sector of circle with radius R and angle P is
 (a) $\frac{P}{180^\circ} \times 2\pi R$ (b) $\frac{P}{180^\circ} \times 2\pi R^2$ (c) $\frac{P}{360^\circ} \times 2\pi R$ (d) $\frac{P}{360^\circ} \times 2\pi R^2$
3. Length of the segment of a circle of radius R and angle P at centre is
 (a) $\frac{P}{360^\circ} \times 2\pi R^2$ (b) $\frac{P}{360^\circ} \times 2\pi R$ (c) $\frac{P}{360^\circ} \times \pi R^2$ (d) $\frac{P}{180^\circ} \times 2\pi R$
4. The difference between the circumference and the radius of the circle is 74 cm. The area of circle is
 (a) 600 cm^2 (b) 610 cm^2 (c) 616 cm^2 (d) 620 cm^2
5. The circumference of a circle exceeds its diameter by 67.2 cm. The circumference of circle is
 (a) 98.56 cm (b) 98 cm (c) 90 cm (d) 92 cm
6. The area of the two circles are in ratio 4 : 9. Ratio between their circumference is
 (a) 1 : 2 (b) 2 : 3 (c) 3 : 4 (d) 4 : 5
7. The ratio of circumference of 2 circles is 3 : 1. Circumference of bigger circle is 39.36 cm, Radius of smaller circle is
 (a) $\frac{2}{\pi} \text{ cm}$ (b) $\frac{5}{\pi} \text{ cm}$ (c) $\frac{6.56}{\pi} \text{ cm}$ (d) $\frac{1.23}{\pi} \text{ cm}$
8. Find the distance covered by wheel of radius 21 dm when it makes 100 revolutions
 (a) 1.32 km (b) 1.30 km (c) 1.31 km (d) 1.35 km
9. A car is moving with a speed of 22 decimetre/sec. Find the diameter of wheel if it performs 700 revolutions per second.
 (a) 0.0 m (b) 0.2 m (c) 1.5 m (d) 0.1 m
10. If the perimeter of semicircular protractor is 36 cm. Its diameter is
 (a) 10 cm (b) 12 cm (c) -15 cm (d) -14 cm
11. The perimeter of a circular field and a square field are same. Find the area of square field if area of circular field is 3850 m^2 .
 (a) 3000 m^2 (b) 4000 m^2 (c) 3025 m^2 (d) 3050 m^2
12. The minute hand of a wall clock is of length 10.5 cm. Find area covered in 1 hour.
 (a) 346.5 cm^2 (b) 348.5 cm^2 (c) 300.5 cm^2 (d) 350 cm^2
13. The inner circumference of a circular track is 24π . The track is 2 m wide everywhere. Find the quantity of wire required to surround the path completely
 (a) 80 m (b) 81 m (c) 82 m (d) 88 m
14. The area of two concentric circles are 962.5 cm^2 and 1386 cm^2 . The width of ring is
 (a) 3.4 cm (b) 3.5 cm (c) 3.2 cm (d) 3.1 cm

15. The perimeter of a sector of a circle of radius 5.2 cm is 16.4 cm. The area of a sector is
 (a) 15.1 cm^2 (b) 15.5 cm^2 (c) 15.6 cm^2 (d) 15.9 cm^2
16. In a circle of radius 21 cm, and arc subtends an angle of 60° at centre. Find the length of arc
 (a) 20 cm (b) 22 cm (c) 24 cm (d) 26 cm
17. A horse is placed for grazing inside a rectangular field of 40 m by 36 m and is tethered to one corner by a rope 14 m long. Over how much area it can graze ?
 (a) 150 m^2 (b) 152 m^2 (c) 151 m^2 (d) 154 m^2
18. A play ground is in form of a rectangle having semicircles on shorter sides. The area when the length of rectangular portion is 80 m and breadth is 42 m is
 (a) 4746 m^2 (b) 4756 m^2 (c) 5740 m^2 (d) 6750 m^2
19. In the fig. ABCD is rectangle having been inscribed in a circle of diameter BD = 10 cm, AB = 6 cm. Calculate area of shaded region.
 (a) 30 cm^2 (b) 40 cm^2 (c) 50 cm^2 (d) 60 cm^2
20. A square park has each side 100 m. At each corner of park, there is a flower bed in form of quadrant of radius 14 m. Find area of remaining part of park.
 (a) 9548 m^2 (b) 9348 m^2 (c) 9384 m^2 (d) 9684 m^2
21. A wire is in form of a circle of radius 28 cm. Find the area of square into which it can be bent
 (a) 1936 cm^2 (b) 1900 cm^2 (c) 1836 cm^2 (d) 1800 cm^2
22. Find the difference between the areas of a regular hexagon of side 72 cm and area of its inscribed circle
 (a) 1260 cm^2 (b) 1250 cm^2 (c) 1240 cm^2 (d) 1230 cm^2
23. The lengths of smaller and bigger hands of watch are 3.50 cm and 4.62 cm respectively. Find the ratio of distances transversed from 6 am to 6 pm
 (a) 15.84 : 1 (b) 16.82 : 3 (c) 15.82 : 3 (d) 16.84 : 1
24. If the diameter of a circle is increased by 40%. What will be its increase in area
 (a) 96% (b) 40% (c) 80% (d) 48%
25. If the sum of the areas of two circles with radii r_1 and r_2 is equal to the area of a circle of radius r , then $r_1 + r_2$
 (a) $> r^2$ (b) $< r^2$ (c) $= r^2$ (d) None of these
26. The ratio of outer and inner perimeters of a circular path is 23 : 22. If path is 5 m wide, diameter of inner circle is
 (a) 55 m (b) 110 m (c) 220 m (d) 230 m
27. The circumference of a circle is 100 cm. The side of a square inscribed in a circle is
 (a) $50\sqrt{2} \text{ cm}$ (b) $\frac{50\sqrt{2}}{\pi} \text{ cm}$ (c) $\frac{100}{\pi} \text{ cm}$ (d) $\frac{100\sqrt{2}}{\pi} \text{ cm}$
28. The area of largest triangle than can be inscribed in semicircle of radius r is
 (a) r^2 (b) $2r^2$ (c) r^3 (d) $2r^3$
29. If radius is diminished by 10%, then its area is diminished by
 (a) 10% (b) 19% (c) 20% (d) 36%
30. If area of circle inscribed in equi Δ is 48π sq. units, then perimeter of triangle is
 (a) $17\sqrt{3}$ units (b) 36 units (c) 72 units (d) $48\sqrt{3}$ units

Value Based Questions.

1. A child prepares a poster on "Save Energy" on a square sheet whose each side measures 60 cm. At each corner of the sheet, she draws a quadrant of radius 17.5 cm in which she shows the ways to save energy. At the centre, she draws a circle of diameter 21 cm and writes a slogan in it. Find the area of the remaining sheet.
 - a) Write down the four ways by which the energy can be saved.
 - b) Write a slogan on "Save Energy".
 - c) Why do we need to save energy?

2. On a square sheet of paper, Ananya forms a design as shown in the figure - 2 to prepare a poster on “Save Energy”. If each side of the Square is 20cm and semicircles are drawn with each side of the square as diameter, find the area of the shaded region.
- How can we save energy?
 - Why do we need to save energy?



(Figure – 2)

3. A survey was conducted in a particular area to find its most polluted region and it was found that the shaded region is the most polluted. If the radius of the circular part that was surveyed is 14m and the angle formed between the two radii is 60° , find the area of the polluted region. (Take $\pi = 3.14$ and $\sqrt{3} = 1.732$)
- How is pollution harmful?
 - What steps can be taken to reduce pollution in any region?

