WORKSHEET 1

CHAPTER 14 – AREAS RELATED TO CIRCLES

1. The area of a circle is 38.5 m^2. The circumference of the circle is
   (*a*) 3.85 m (*b*) 22 m (*c*) 17.25 m (*d*) 8.5 m

2. On increasing the diameter of a circle by 40%, its area will be increased by
   (*a*) 96% (*b*) 40% (*c*) 10% (*d*) 80%

3. The area of the sector of a circle of radius r marking a central angle of $x°$ is
   (*a*) $\frac{x}{180} \times 2\pi r^2$ (*b*) $\frac{x}{360} \times \pi r^2$ (*c*) $\frac{x}{360} \times 2\pi r$ (*d*) None of these

4. The circumference of a circle is 44 cm. Then, the area of the circle is
   (*a*) 176 cm^2 (*b*) 154 cm^2 (*c*) 44 cm^2 (*d*) 576 cm^2

5. The are of the largest triangle that can be inscribed in a semicircle of radius R is
   (*a*) R^2 cm^2 (*b*) 2 R cm^2 (*c*) $\frac{R}{2} cm^2$ (*d*) $\sqrt{R}$ cm^2

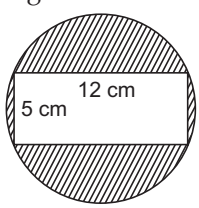
6. The area of a ring shaped region enclosed between two concentric circles of radii 20 cm and 15 cm, is
   (*a*) 750 cm^2 (*b*) 250 cm^2 (*c*) 500 cm^2 (*d*) 550 cm^2

7. Find the area of a circle whose circumference is 52.8 cm.

8. A wire is looped in the form of a circle of radius 28 cm. It is rebent into a square form. Determine the length of the side of the square.

9. A bicycle wheel makes 5000 revolutions in moving 11 km. Find the diameter of the wheel.

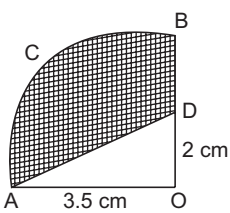
10. Find the area of the shaded region in the figure given below.



11. The minute hand of a clock is 12 cm long. Find the area of the face of the clock described by the minute hand in 35 minutes.

12. Find the area of a quadrant of a circle whose circumference is 22 cm.

13. In the given figure, AOBCA represents a quadrant of a circle of radius 3.5 cm with centre O. Calculate the area of the shaded portion.



14. In a circle of radius 10.5 cm, the minor arc is one-fifth of the major arc. Find the area of the sector corresponding to the major arc.

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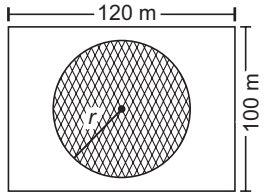
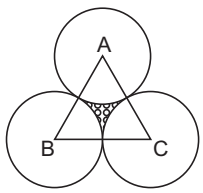
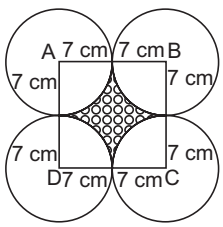
15. A park is in the form of a rectangle of dimensions 120 m × 100 m. At the centre of the park there is a circular lawn as shown in the following figure. The area of the park excluding the lawn is 8700 m^2. Find the radius of the circular lawn. $\left[\text{Use } \pi = \frac{22}{7}\right]$



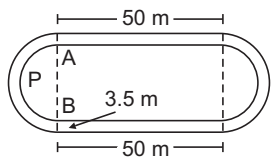
16. The area of an equilateral triangle ABC is 17320.5 cm^2. With each vertex of the triangle as centre, a circle is drawn with radius equal to half the length of the side of the triangle (see the figure). Find the area of the shaded region. [Use π = 3.14 and $\sqrt{3}$ = 1.73205]



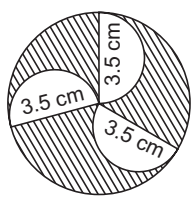
17. Four equal circles are described about the four corners of a square so that each circle touches two of the others as shown in the figure. Find the area of the shaded region, if each side of the square measures 14 cm.



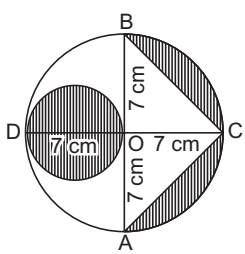
18. The given figure shows the inner boundary of a 144 m running track, which has two parallel straight line each of length 50 m and two semicircular ends. Calculate the radius of the semicircular and APB. If the width of the track is 3.5 m, calculate its outer boundary.



19. The figure given below, is made up of one circle and 3 semicircles. Find the area of the shaded part.



20. In the given figure, AB and CD are two diameters of a circle (with centre O) perpendicular to each other and OD is the diameter of the smaller circle. If OA = 7 cm, find the area of the shaded region.



ANSWERS

WORKSHEET 1

1. (*b*) 22 m 2. (*a*) 96% 3. (*b*) $\frac{x}{360} \times \pi r^2$ 4. (*b*) 154 cm^2 5. (*a*) R^2 cm^2 6. (*d*) 550 cm^2

7. 22.76 cm^2 8. 44 cm 9. 70 cm 10. 72.665 cm^2 11. 264 cm^2 12. 9.625 cm^2

13. 6.125 cm^2 14. 288.75 cm^2 15. Radius = 32.403 m (approx.) 16. 1620.5 cm^2

17. 42 cm^2 18. 7 m, 166 m 19. $\frac{385}{16}$ cm^2 20. 66.5 cm^2