ASSIGNMENT AREAS RELATED TO CIRCLES CLASS X

1. The radius of the circle is 3 m. What is the circumference of another circle, whose area is 49 times that of the first?

2. Two circles touch externally. The sum of their areas is 130 π sq. cm and the distance between their centres is 14 cm. Find the radii of the circles.

3. A wire when bent in the form of an equilateral triangle encloses an area of 121 $\sqrt{3}$ cm^2 . If the same wire is bent in the form of a circle, find the area of the circle.

4. The area enclosed between the two concentric circles is 770 cm2. If the radius of the outer circle is 21 cm, calculate the radius of the inner circle.

5. A wheel of diameter 42 cm, makes 240 revolutions per minute. Find :

(*i*) the total distance covered by the wheel in one minute. (*ii*) the speed of the wheel in km/hr.

6. An arc of length 20πcm subtends an angle of 144° at the centre of the circle. Find radius of circle.

7. The perimeter of a sector of a circle of radius 5.7 m is 27.2 m. Find the area of the sector.

8. In the given figure, the length of the minor arc is 7/24 of the circumference of the circle. Find : (*i*) <AOB

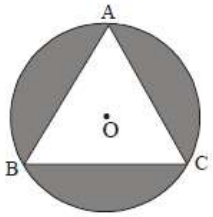
(*ii*) If it is given that the circumference of the circle is 132 cm, find the length of the minor arc AB and the radius of the circle.

9. A chord of a circle of radius 10 cm subtends a right angle at the centre. Find :

(*i*) Area of the minor sector (*ii*) Area of the minor segment

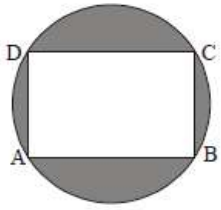
(*iii*) Area of major sector (*iv*) Area of major segment (use π = 3.14)

10. A chord of a circle of radius 12 cm subtends an angle of 120° at the centre. Find the area of the corresponding segment of the circle. [use π = 3.14, $\sqrt{3}$ = 1.73]



11. In the given figure, ABC is an equilateral triangle inscribed in a circle of radius 4 cm. Find the area of the shaded region.

12. The following figure shows a rectangle ABCD inscribed in a circle.



(*i*) If AB = 8 cm and BC = 6 cm, find the area of the circle not included in the rectangle.

(*ii*) If diameter of the circle is 25 cm and BC = 15 cm, find the area of the circle not included in the given rectangle.

13. A paper is in the form of a rectangle ABCD in which AB = 20 cm and BC = 14 cm. A semi circular portion with BC as diameter is cut off. Find the area of the remaining part

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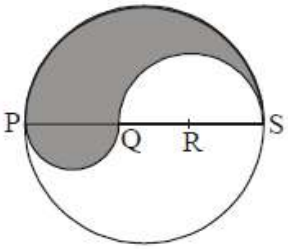
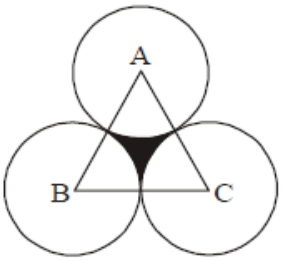


14. PQRS is a diameter of a circle of radius 6 cm. The lengths PQ, QR and RS are equal, semi-circles are drawn on PQ and QS as diameters as shown in figure. Find the perimeter and area of the shaded region.

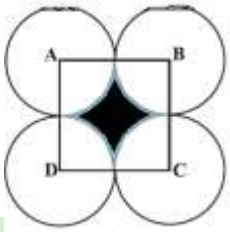
15. In the following figure, ABC is an equilateral triangle. Circles are drawn with vertices of the triangle ABC as centers so that every circle touches the remaining two. If the perimeter of the triangle ABC is 84 cm.

Find: (*i*) area of sector, inside the triangle, of each circle.

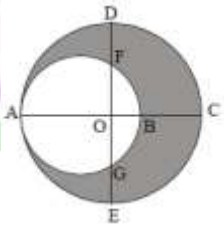


(*ii*) area of the triangle which is not included in the circle. [use $\pi = 3.14$, $\sqrt{3} = 1.73$]

16. Four equal circles are described at the four corners of a square so that each touches two of the others. The shaded area, enclosed between the circles is $24/7 cm^2$. Find radius of the each circle.

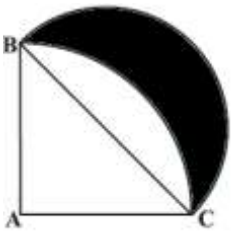


17. Three horses are tethered with 7 m long ropes at the three corners of a triangular field having sides 20 m, 34 m and 42 m. Find the area of the plot which can be grazed by the horses. Also, find the area of the plot which remains ungrazed.



18. In the given figure, O is the centre of the bigger circle, and AC is its diameter. Another circle with AB as diameter is drawn. If AC = 54 cm and BC = 10 cm, find area of the shaded region.

19. A circle has been inscribed in a square of side 4 cm. Determine the left out area. What will be the left out area of the circle if a square is inscribed in the circle? [use π= 3.14]



20. In given Fig., ABC is a quadrant of a circle of radius 14 cm and a semicircle is drawn with BC as diameter. Find the area of the shaded region.

ANSWERS

1. 132 m^2 **2.** 11 cm and 3 cm **3.** 346.5 cm2 **4.** 14 cm **5.** (i) 316.8 m (ii) 19.008 km/hr **6.** 25 cm **7.** 45.03 m^2 **8.** (*i*) 105° (*ii*) 38.5 cm, 21 cm **9.** (*i*) 78.5 cm2 (*ii*) 28.5 cm2 (*iii*) 235.5 cm^2 (*iv*) 285.5 cm^2 **10.** 88.44cm^2 **11.** (16 π – 12 $\sqrt{3}$) cm2 **12.** (*i*) 30.55 cm2 (*ii*) 190.635 cm^2**13.** 203 cm^2 **14.** 12 π cm, 37.71 cm^2 **15.** (*i*) 102.57 cm2 (*ii*) 31.37 cm2 **16.** 2 cm **17.** 77 m2, 259 m^2 **18.** 770 cm^2 **19.** 3.44 cm^2; 4.56 cm^2