INTERNATIONAL INDIAN SCHOOL BURAIDAH

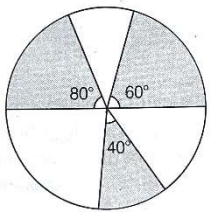
Worksheet for the Academic Year 2024-25

CLASS: X SUBJECT: MATHEMATICS DATE: 10-11-2024

LESSON: 12 AREA RELATED TO CIRCLES

Level 1:

1. In a circle of radius 28cm, an arc subtends an angle of 60° at the centre. Find the area of the sector formed by the arc? (Ans: 410.67cm^2)
2. The area of the sector of a circle is $\frac{7}{20}$ of the area of the circle, then the angle at the centre is equal to---- (Ans: 126°)
3. Perimeter of a sector of a circle whose central angle is 90° and radius 7cm is (Ans: 25cm)
4. Area of a sector of a circle of radius 36cm is 54 π cm^2. Find the length of the corresponding arc of sector. (Ans: 3π cm)
5. Find the area of the sector of a circle of radius 5cm, if the corresponding arc length is 3.5cm (Ans: 8.75cm^2)
6. Area of a sector of central angle 200° of a circle is 770 cm^2. Find the length of the corresponding arc of this sector. (Ans: $73\frac{1}{3}$ cm)
7. The length of the minute hand of a clock is 5cm. Find the area swept by the minute hand during the time period 6:05 am and 6: 40 am (Ans: $45\frac{5}{6}$ cm)
8. In the given figure, three sectors of a circle of radius 7cm, making angles 60°, 80°, and 40° at the centre are shaded. Find the area of the shaded region. (Ans: 77cm^2)



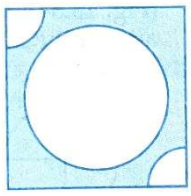
9. Find the area of the sector of a circle with radius 4cm and angle of 30°. Also, find the area of the corresponding major sector. (use π = 3.14) (Ans: 46.05cm^2)
10. Find the difference of the areas of the sector of angle 120° and its corresponding major sector of a circle of radius 21cm (Ans: 462 cm^2)
11. A chord of a circle of radius 20cm subtends an angle of 90° at the centre. Find the area of the corresponding major segment of the circle (Use π = 3.14)

    (Ans: 1142 cm^2)

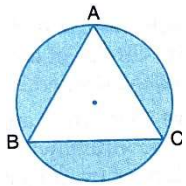
12. A chord AB of a circle of radius 15cm makes an angle of 60° at the centre of the circle. Find the area of the major and minor segments (Use π = 3.14, $\sqrt{3}$ = 1.73)

(Ans: 20.295 cm^2, 686.205 cm^2)

13. From each of the two opposite corners of a square of side 8cm, a quadrant of a circle of radius 1.4cm is cut. Another circle of radius 4.2 cm is also cut from the centre as shown in the figure. Find the area of the remaining portion (shaded region) of the square (Ans: 5.48cm^2)

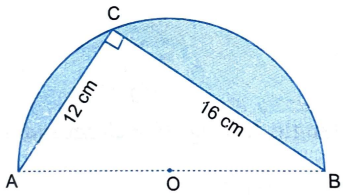


14. In the figure an equilateral triangle ABC of side 6cm has been inscribed in a circle. Find the area of the shaded region(π = 3.14) (Ans: 22.126cm^2)



15. In the figure O is the centre of the circular arc and AOB is a straight line. Find the perimeter and area of the shaded region correct to one decimal place (π = 3.142)

(Ans: 59.4cm,61.1 cm^2)



Level 2:

16. In a circle with centre O and radius 5cm, AB is the chord of length $5\sqrt{3}$ cm. Find the area of the sector (Ans: $\frac{25\pi}{3}$ cm^2)
17. The figure shows a sector of a circle of radius 'r' cm containing an angle $\theta°$. The area of the sector is A cm^2 and perimeter of the sector is 50cm. Prove that

a) $\theta = \frac{360}{\pi}\left(\frac{25}{r} - 1\right)$ b) $A = 25r - r^2$

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