

Answers Sheet

Sector Area and Arc Length

1.

$$\begin{aligned} &= (145 / 360) \times \pi (6)^2 \\ &= 45.53 \text{ cm}^2 \end{aligned}$$

2.

$$\begin{aligned} &= (130 / 360) \times 2\pi (20) \\ &= 14.44 \pi \text{ cm} \end{aligned}$$

3.

$$\begin{aligned} &= (170 / 360) \times \pi (14.4)^2 \\ &= 308 \text{ cm}^2 \end{aligned}$$

4.

$$\begin{aligned} &= (50 / 360) \times 2\pi (8) \\ &= 2 \pi \text{ cm} \end{aligned}$$

5.

$$\begin{aligned} &= (198 / 360) \times \pi (12)^2 \\ &= 249 \text{ cm}^2 \end{aligned}$$

6.

$$\begin{aligned} &= (80 / 360) \times 2\pi (4.2) \\ &= 5.8 \text{ cm} \\ \text{Perimeter} &= 4.2 + 4.2 + 5.8 \\ &= 14.2 \text{ cm} \end{aligned}$$

7.

$$\begin{aligned}\text{Area of shaded region} &= (1/4) \times \pi (8)^2 \\ &= 16\pi\end{aligned}$$

$$\begin{aligned}\text{Area of without shaded region} &= (1/2) \pi (4)^2 \\ &= 8\pi\end{aligned}$$

$$\begin{aligned}\text{Shaded area} &= 16\pi - 8\pi \\ &= 8\pi \text{ cm}^2\end{aligned}$$

8.

$$\begin{aligned}\text{Area of rectangle} &= 15 \times 18 \\ &= 270 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}\text{Area of semi-circle} &= (1/2) \pi (7.5)^2 \\ &= 28.125 \pi \text{ cm}^2\end{aligned}$$

$$\begin{aligned}\text{Shaded area} &= 270 - 28.125 \pi \\ &= 181.68 \text{ cm}^2 \\ &= (181.68 / 180) \times 100 \\ &= 100.93\%\end{aligned}$$

9.

$$\text{Arc length} = (x / 360) \times 2 \pi r$$

$$16 = (x / 360) \times 2 \pi (14)$$

$$5760 = x \times 28 \pi$$

$$x = 5760 / 28 \pi$$

$$x = 65.5^\circ$$

$$\begin{aligned}\text{Area} &= (65.5 / 360) \times \pi (14)^2 \\ &= 111 \text{ cm}^2\end{aligned}$$

10.

$$(x / 360) \times 2 \pi (10) = 8 \pi$$

$$(20x / 360) = 8$$

$$x = 144^\circ$$

$$\begin{aligned}\text{Area} &= (144 / 360) \times \pi (10)^2 \\ &= 40 \pi \text{ cm}^2\end{aligned}$$
