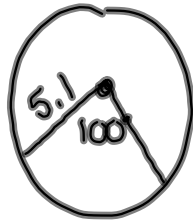


① a)



Given:

$$r = \underline{5.1 \text{ cm}}$$

$$\text{angle} = 100^\circ$$

$$\begin{aligned} \text{(i)} \quad A &= \pi r^2 \\ &= \pi (5.1)^2 \\ &= \pi (26.01) \\ &= \underline{81.71 \text{ cm}^2} \end{aligned}$$

$$\text{(ii)} \quad \frac{\text{Sector Area}}{\text{Area of Circle}} = \frac{\text{angle}}{360^\circ}$$

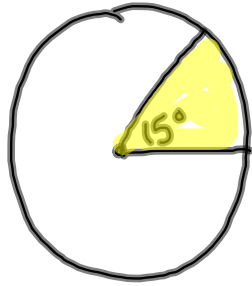
$$\frac{\text{Sector Area}}{81.71} = \frac{100^\circ}{360^\circ}$$

$$(360)(\text{Sector Area}) = (81.71)(100)$$

$$\frac{360(\text{Sector Area})}{360} = \frac{8171}{360}$$

$$\boxed{\text{Sector Area} = 22.7 \text{ cm}^2}$$

② a)



Given:

$$\text{angle} = 15^\circ$$

$$SA = 3.5 \text{ cm}^2$$

$$SA = 3.5 \text{ cm}^2$$

Finding Radius:

$$(i) \frac{SA}{A \text{ of } O} = \frac{\text{angle}}{360^\circ}$$

$$\frac{3.5}{A \text{ of } O} = \frac{15^\circ}{360^\circ}$$

$$(3.5)(360) = (15)(A \text{ of } O)$$

$$\frac{1260}{15} = \frac{(15)(A \text{ of } O)}{15}$$

$$84 = \text{Area of Circle}$$

$$(ii) A = \pi r^2$$

$$\frac{84}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{26.74} = \sqrt{r^2}$$

$$\boxed{5.2 \text{ cm} = r}$$

ANSWERS \Rightarrow SECTOR AREA WORKSHEET

1. a) ① $A = \pi r^2$
 $= \pi (5.1)^2$
 $= \pi (26.01)$
 $= 81.7 \text{ cm}^2$

② $\frac{\text{Sector Area}}{\text{Area of Circle}} = \frac{\text{Angle}}{360^\circ}$
 $\frac{\text{Sector Area}}{81.7 \text{ cm}^2} = \frac{100^\circ}{360^\circ}$
 $\frac{(\text{Sector Area})(360^\circ)}{360^\circ} = \frac{(81.7 \text{ cm}^2)(100^\circ)}{360^\circ}$
Sector Area = 22.7 cm^2

b) ① $A = \pi r^2$
 $= \pi (6.7)^2$
 $= \pi (44.89)$
 $= 141.03 \text{ cm}^2$

② $\frac{\text{Sector Area}}{\text{Area of Circle}} = \frac{\text{Angle}}{360^\circ}$
 $\frac{\text{Sector Area}}{141.03 \text{ cm}^2} = \frac{36^\circ}{360^\circ}$
 $\frac{(\text{Sector Area})(360^\circ)}{360^\circ} = \frac{(141.03 \text{ cm}^2)(36^\circ)}{360^\circ}$
Sector Area = 14.10 cm^2

$$\begin{aligned}
 \text{c) } ① A &= \pi r^2 \\
 &= \pi (23.7)^2 \\
 &= \pi (561.69) \\
 &= 1764.6 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 ② \text{Sector Area} &= \frac{\text{Angle}}{\text{Area of circle}} \\
 &= \frac{210^\circ}{360^\circ} \\
 &= \frac{1764.6 \text{ cm}^2}{360^\circ} \\
 \text{Sector Area} &= \frac{(1764.6 \text{ cm}^2)(210^\circ)}{360^\circ} \\
 &= 1029.4 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{d) } ① A &= \pi r^2 \\
 &= \pi (10.2)^2 \\
 &= \pi (104.04) \\
 &= 326.85 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 ② \text{Sector Area} &= \frac{\text{Angle}}{\text{Area of circle}} \\
 &= \frac{180^\circ}{360^\circ} \\
 &= \frac{326.85 \text{ cm}^2}{360^\circ} \\
 \text{Sector Area} &= \frac{(326.85 \text{ cm}^2)(180^\circ)}{360^\circ} \\
 &= 163.4 \text{ cm}^2
 \end{aligned}$$

$$2a) \textcircled{1} \frac{\text{Sector Area}}{\text{Area of Circle}} = \frac{\text{Angle}}{360^\circ}$$

$$\frac{3.5 \text{ cm}^2}{\text{Area of Circle}} = \frac{15^\circ}{360^\circ}$$

$$\frac{(3.5 \text{ cm}^2)(360^\circ)}{15^\circ} = \frac{(\text{Area of Circle})(15^\circ)}{15^\circ}$$

$$84 \text{ cm}^2 = \text{Area of Circle}$$

$$\textcircled{2} A = \pi r^2$$

$$\frac{84 \text{ cm}^2}{\pi} = \frac{\pi r^2}{\pi}$$

$$26.74 \text{ cm}^2 = r^2$$

$$5.17 \text{ cm} = r$$

$$b) \textcircled{1} \frac{\text{Sector Area}}{\text{Area of Circle}} = \frac{\text{Angle}}{360^\circ}$$

$$\frac{327.1 \text{ cm}^2}{\text{Area of Circle}} = \frac{240^\circ}{360^\circ}$$

$$\frac{(327.1 \text{ cm}^2)(360^\circ)}{240^\circ} = \frac{(\text{Area of Circle})(240^\circ)}{240^\circ}$$

$$490.65 \text{ cm}^2 = \text{Area of Circle}$$

$$\textcircled{2} A = \pi r^2$$

$$\frac{490.65 \text{ cm}^2}{\pi} = \frac{\pi r^2}{\pi}$$

$$156.18 \text{ cm}^2 = r^2$$

$$12.5 \text{ cm} = r$$

$$c) \textcircled{1} \frac{\text{Sector Area}}{\text{Area of Circle}} = \frac{\text{Angle}}{360^\circ}$$

$$\frac{332.7 \text{ cm}^2}{\text{Area of Circle}} = \frac{126^\circ}{360^\circ}$$

$$\frac{(332.7 \text{ cm}^2)(360^\circ)}{126^\circ} = \frac{(\text{Area of Circle})(126^\circ)}{126^\circ}$$

$$950.57 \text{ cm}^2 = \text{Area of Circle}$$

$$\textcircled{2} A = \pi r^2$$

$$\frac{950.57 \text{ cm}^2}{\pi} = \frac{\pi r^2}{\pi}$$

$$302.58 \text{ cm}^2 = r^2$$

$$17.4 \text{ cm} = r$$

$$d) \textcircled{1} \frac{\text{Sector Area}}{\text{Area of Circle}} = \frac{\text{Angle}}{360^\circ}$$

$$\frac{4.3 \text{ cm}^2}{\text{Area of Circle}} = \frac{67.5^\circ}{360^\circ}$$

$$\frac{(4.3 \text{ cm}^2)(360^\circ)}{67.5^\circ} = \frac{(\text{Area of Circle})(67.5^\circ)}{67.5^\circ}$$

$$22.93 \text{ cm}^2 = \text{Area of Circle}$$

$$\textcircled{2} A = \pi r^2$$

$$\frac{22.93 \text{ cm}^2}{\pi} = \frac{\pi r^2}{\pi}$$

$$7.3 \text{ cm}^2 = r^2$$

$$2.7 \text{ cm} = r$$