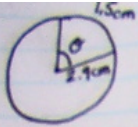


2a)



$$\begin{aligned}
 C &= 2\pi r \\
 &= 2(3.14)(2.9 \text{ cm}) \\
 &= 18.212 \text{ cm}
 \end{aligned}$$

$$\frac{\text{Arc Length}}{\text{Circumference}} = \frac{\theta}{360^\circ}$$

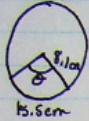
$$\frac{1.5 \text{ cm}}{18.212 \text{ cm}} = \frac{\theta}{360}$$

$$(18.212 \text{ cm})\theta = (1.5 \text{ cm})(360^\circ)$$

$$\frac{(18.212 \text{ cm})\theta}{18.212 \text{ cm}} = \frac{540 \text{ cm}^\circ}{18.212}$$

$$\theta = 29.7^\circ$$

3b)



$$\begin{aligned}
 C &= 2\pi r \\
 &= 2(3.14)(8.1 \text{ cm}) \\
 &= 50.868 \text{ cm}
 \end{aligned}$$

$$\frac{AL}{\text{Circumference}} = \frac{\theta}{360}$$

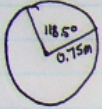
$$\frac{15.5 \text{ cm}}{50.868 \text{ cm}} = \frac{\theta}{360^\circ}$$

$$(50.868 \text{ cm})\theta = (15.5 \text{ cm})(360^\circ)$$

$$\frac{(50.868 \text{ cm})\theta}{50.868 \text{ cm}} = \frac{5580 \text{ cm}^\circ}{50.868 \text{ cm}}$$

$$\theta = 109.7^\circ$$

9a)



$$\begin{aligned}
 A &= \pi r^2 \\
 &= 3.14 (0.75\text{m})^2 \\
 &= 3.14 (0.5625\text{m}^2) \\
 &= 1.76625\text{m}^2
 \end{aligned}$$

$$\frac{A. \text{Sect}}{A. \text{Circle}} = \frac{\theta}{360^\circ}$$

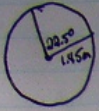
$$\frac{x}{1.76625\text{m}^2} = \frac{118.5^\circ}{360^\circ}$$

$$x(360^\circ) = (118.5^\circ)(1.76625)$$

$$\frac{x(360^\circ)}{360^\circ} = \frac{209.3^\circ\text{m}^2}{360^\circ}$$

$$x = 0.58\text{m}^2$$

9b)



$$\begin{aligned}
 A &= \pi r^2 \\
 &= 3.14 (1.45\text{m})^2 \\
 &= 3.14 (2.1025\text{m}^2) \\
 &= 6.60\text{m}^2
 \end{aligned}$$

$$\frac{A. \text{Sect}}{A. \text{Cir}} = \frac{\theta}{360^\circ}$$

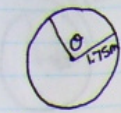
$$\frac{x}{6.60\text{m}^2} = \frac{22.5^\circ}{360^\circ}$$

$$(360^\circ)x = (22.5^\circ)(6.60\text{m}^2)$$

$$\frac{(360^\circ)x}{360^\circ} = \frac{148.5^\circ\text{m}^2}{360^\circ}$$

$$x = 0.4125\text{m}^2$$

10)



Sector Area = 24.25 cm<sup>2</sup>

Remember 1.75m = 175cm ↙ Radius

$$\begin{aligned} \text{A. Circle} &= \pi r^2 \\ &= (3.14)(175\text{cm})^2 \\ &= (3.14)(30625\text{cm}^2) \\ &= 96162.5\text{cm}^2 \end{aligned}$$

$$\frac{\text{Sector Area}}{\text{Area Circle}} = \frac{\theta}{360^\circ}$$

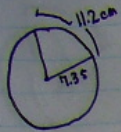
$$\frac{24.25\text{cm}^2}{96162.5\text{cm}^2} = \frac{\theta}{360^\circ}$$

$$(96162.5\text{cm}^2)(\theta) = (360^\circ)(24.25\text{cm}^2)$$

$$\frac{(96162.5\text{cm}^2)\theta}{96162.5\text{cm}^2} = \frac{8730^\circ\text{cm}^2}{96162.5\text{cm}^2}$$

$$\theta = 0.09^\circ$$

12)



$$\left. \begin{aligned} \text{Area of Circle} &= \pi r^2 \\ &= (3.14)(7.35\text{cm})^2 \\ &= (3.14)(54.0225\text{cm}^2) \\ &= 169.6\text{cm}^2 \end{aligned} \right\} \begin{aligned} C &= 2\pi r \\ &= 2(3.14)(7.35) \\ &= 46.158\text{cm} \end{aligned}$$

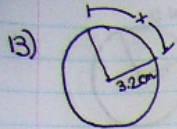
$$\frac{\text{A.L.}}{\text{Circum}} = \frac{\text{Sector Ar.}}{\text{Area Circle}}$$

$$\frac{11.2\text{cm}}{46.158\text{cm}} = \frac{x}{169.6\text{cm}^2}$$

$$(46.158\text{cm})x = (11.2\text{cm})(169.6\text{cm}^2)$$

$$\frac{(46.158\text{cm})x}{46.158\text{cm}} = \frac{1899.52\text{cm}^3}{46.158\text{cm}}$$

$$x = 41.2\text{cm}^2$$



$$\text{Sec Area} = 10.2 \text{ cm}^2$$

$$\begin{aligned} A &= \pi r^2 \\ &= 3.14 (3.2)^2 \\ &= 3.14 (10.24 \text{ cm}^2) \\ &= 32.15 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} C &= 2\pi r \\ &= 2(3.14)(3.2 \text{ cm}) \\ &= 20.1 \text{ cm} \end{aligned}$$

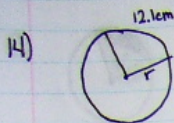
$$\frac{A.L}{\text{Circumf}} = \frac{\text{Sec Area}}{\text{Area Circle}}$$

$$\frac{x}{20.1 \text{ cm}} = \frac{10.2 \text{ cm}^2}{32.15 \text{ cm}^2}$$

$$(32.15 \text{ cm}^2)x = (10.2 \text{ cm}^2)(20.1 \text{ cm})$$

$$\frac{(32.15 \text{ cm}^2)x}{32.15 \text{ cm}^2} = \frac{205.02 \text{ cm}^3}{32.15 \text{ cm}^2}$$

$$x = 6.4 \text{ cm}$$



$$\text{Sec Area} = 27.8 \text{ cm}^2$$

$$\frac{A.L}{\text{Circumf}} = \frac{\text{Sec Area}}{\text{Area Circle}}$$

$$\frac{12.1 \text{ cm}}{2\pi r} = \frac{27.8 \text{ cm}^2}{\pi r^2}$$

$$\frac{12.1 \text{ cm}}{6.28 r} = \frac{27.8 \text{ cm}^2}{3.14 r^2}$$

$$(3.14 r^2)(12.1 \text{ cm}) = (27.8 \text{ cm}^2)(6.28) r$$

$$(r^2)(37.994 \text{ cm}) = (174.584 \text{ cm}^2) r$$

$$\frac{(r^2)(37.994 \text{ cm})}{r} = \frac{(174.584 \text{ cm}^2) r}{r}$$

$$r(37.994 \text{ cm}) = 174.584 \text{ cm}^2$$

$$\frac{r(37.994 \text{ cm})}{37.994 \text{ cm}} = \frac{174.584 \text{ cm}^2}{37.994}$$

$$r = 4.6 \text{ cm}$$

## Area of Segment

①



$$\begin{aligned} \text{A of Circle} &= \pi r^2 \\ &= 3.14 (21\text{cm})^2 \\ &= 3.14 (441\text{cm}^2) \\ &= 1384.74\text{cm}^2 \end{aligned}$$

$$\frac{\text{Area Sect}}{\text{A. Circle}} = \frac{\theta}{360^\circ}$$

$$\frac{x}{1384.74\text{cm}^2} = \frac{75^\circ}{360}$$

$$360^\circ x = 75^\circ (1384.74\text{cm}^2)$$

$$\frac{360^\circ x}{360^\circ} = \frac{103855.5^\circ\text{cm}^2}{360^\circ}$$

$$\text{A of Sect} = 288.5\text{cm}^2$$

$$A_\Delta = \frac{1}{2} r^2 \sin \theta$$

$$= \frac{1}{2} (21\text{cm})^2 (\sin 75^\circ)$$

$$= \frac{1}{2} (441\text{cm}^2) (0.9659)$$

$$= \frac{1}{2} (425.97\text{cm}^2)$$

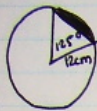
$$= 212.99\text{cm}^2$$

$$\text{A of Segment} = \text{A. of Sector} - \text{A of } \Delta$$

$$\begin{aligned} &= 288.5\text{cm}^2 - 212.99\text{cm}^2 \\ &= \boxed{75.51\text{cm}^2} \end{aligned}$$

## Area of a Segment

②



$$\begin{aligned} \text{A of Circle} &= \pi r^2 \\ &= (3.14) (12 \text{ cm})^2 \\ &= 3.14 (144 \text{ cm}^2) \\ &= 452.16 \text{ cm}^2 \end{aligned}$$

$$\frac{\text{Area of Sector}}{\text{Area of Circle}} = \frac{\text{Angle}}{360^\circ}$$

$$\frac{\text{A. Sec}}{452.16 \text{ cm}^2} = \frac{125^\circ}{360^\circ}$$

$$(\text{A. Sec})(360^\circ) = (125^\circ)(452.16 \text{ cm}^2)$$

$$\frac{(\text{A. Sec})(360^\circ)}{360^\circ} = \frac{56520 \text{ cm}^2}{360^\circ}$$

$$\text{A. Sec} = 157 \text{ cm}^2$$

$$\text{Area of } \Delta = \frac{1}{2} r^2 \sin \theta$$

$$= \frac{1}{2} (12 \text{ cm})^2 \sin 125^\circ$$

$$= \frac{1}{2} (144 \text{ cm}^2) (0.8192)$$

$$= \frac{1}{2} (117.96 \text{ cm}^2)$$

$$= 58.8 \text{ cm}^2$$

$$\begin{aligned} \text{Area of Segment} &= \text{Area of Sector} - \text{Area of } \Delta \\ &= 157 \text{ cm}^2 - 58.8 \text{ cm}^2 \\ &= \boxed{98.2 \text{ cm}^2} \end{aligned}$$