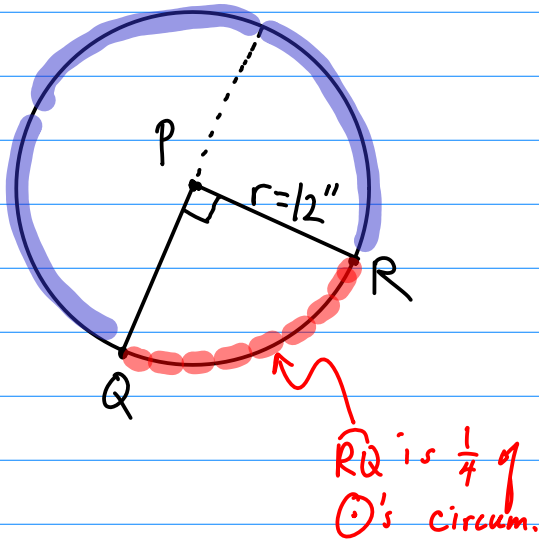


§ 6.7 : Arc Length

Ex: $d = 24''$; $m\widehat{RQ} = 90^\circ$ Find length of \widehat{RQ} (arc length).



→ length of \widehat{RQ} is a fraction of the \odot 's circumference.

$$C = \pi d$$

$$C = \pi \cdot 24''$$

$$C = 24\pi''$$

$$\downarrow \times \frac{1}{4}$$

$$\text{length of } \widehat{RQ} = \frac{1}{4} \cdot 24\pi''$$

$$= \frac{1}{4} \cdot \frac{24}{1} \pi''$$

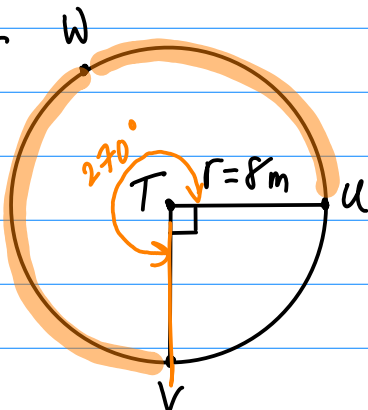
$$= \frac{24}{4} \pi''$$

$$= \boxed{6\pi''}$$

Arc Length is a fraction of \odot 's circum.

$$* \text{ Arc Length} = \frac{\text{m. of central } \angle}{360^\circ} \times 2\pi r$$

Ex:

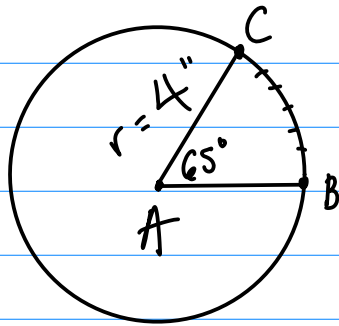


Find length of \widehat{UW} .

$$\text{length of } \widehat{UW} = \frac{\frac{3}{4} \cdot 270^\circ}{360^\circ} \cdot 2\pi(8m)$$

$$= \frac{3}{4} \cdot \frac{16}{1} \pi m = \frac{3 \cdot 16}{4} \pi m = \boxed{12\pi m}$$

Ex:



length of $\widehat{BC} = ?$

$$\text{length of } \widehat{BC} = \left(\frac{\text{m. central}}{360^\circ} \right) \cdot 2\pi r$$

$$= \frac{65^\circ}{360^\circ} \cdot 2\pi (4")$$

$$= \frac{13}{72} \cdot \pi "$$

$$= \frac{13}{72} \pi "$$

$$= \boxed{\frac{13}{9} \pi "}$$

$$\begin{array}{r} 13 \\ 5 \overline{) 65} \\ \underline{72} \\ 5 \overline{) 360} \end{array}$$