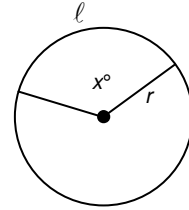


Arc Length

An arc is part of a circle and its length is a part of the circumference of the circle. The length of arc ℓ can be found using the following

equation: $\ell = \frac{x}{360} \cdot 2\pi r$.



Example Find Arc Length

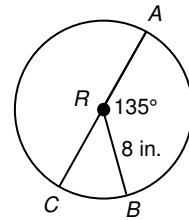
Find the length of \widehat{AB} . Round to the nearest hundredth.

The length of arc AB can be found using the equation $\widehat{AB} = \frac{x}{360} \cdot 2\pi r$.

$$\widehat{AB} = \frac{x}{360} \cdot 2\pi r \quad \text{Arc Length Equation}$$

$$= \frac{135}{360} \cdot 2\pi(8) \quad x = 135^\circ \text{ and } r = 8$$

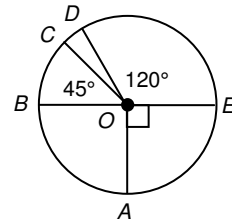
$$\approx 18.85 \quad \text{Use a calculator.}$$



Exercises

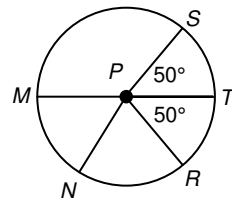
Use \widehat{O} to find the length of each arc. Round to the nearest hundredth.

- \widehat{DE} if the radius is 2 meters
- \widehat{DEA} if the diameter is 7 inches
- \widehat{BC} if $BE = 24$ feet
- \widehat{CBA} if $DO = 3$ millimeters



Use \widehat{P} to find the length of each arc. Round to the nearest hundredth.

- \widehat{RT} , if $MT = 7$ yards
- \widehat{MR} , if $PR = 13$ feet
- \widehat{MST} , if $MP = 2$ inches
- \widehat{MRS} , if $PS = 10$ centimeters





Arc Length

Answers

- 1.** 4.19 m
- 2.** 12.83 in.
- 3.** 9.42 ft
- 4.** 7.407 mm
- 5.** 3.05 yd
- 6.** 29.50 ft
- 7.** 6.28 in.
- 8.** 40.14 cm