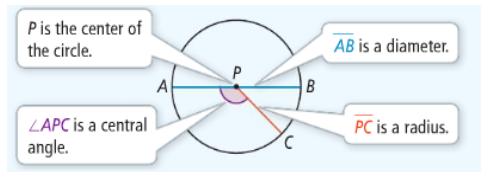


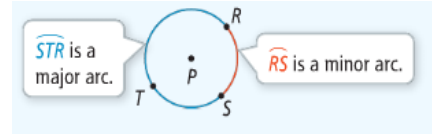
Lesson 10.6 Circles & Arcs

You name a circle according to its center point. Circle P is shown below along with the different parts of a circle.

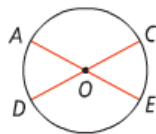


The parts of a circle on the previous page were review. The parts below are new.

An arc is a part of a circle. Half of the circle is called a semicircle. A minor arc is smaller than a semicircle and a major arc is larger than a semicircle. You name a minor arc by its endpoints and a major arc or a semicircle by its endpoints and another point on the arc.



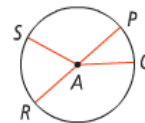
Ex. What are the minor arcs of circle O?



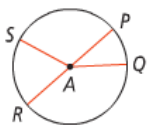
Ex. What are the semicircles?

Ex. What are the major arcs of circle O that contain point A?

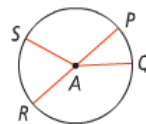
1 What is one minor arc?



2 Name a semicircle.



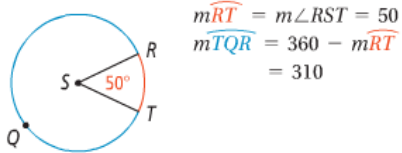
3 Name a major arc.



Arc Measure:

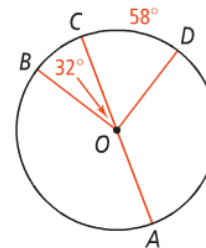
- *The measure of a minor arc is equal to the measure of its corresponding central angle.
- *The measure of a major arc is the measure of the related minor arc subtracted from 360 degrees.
- *The measure of a semicircle is 180.

Example

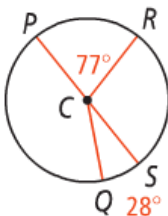


Ex. What is the measure of each arc in circle O?

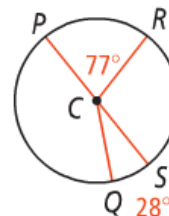
- a. arcBC b. arcBD
c. arcABC d. arcAB



4 What is the measure of arcPR?

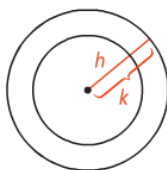


5 What is the measure of arcPRQ?



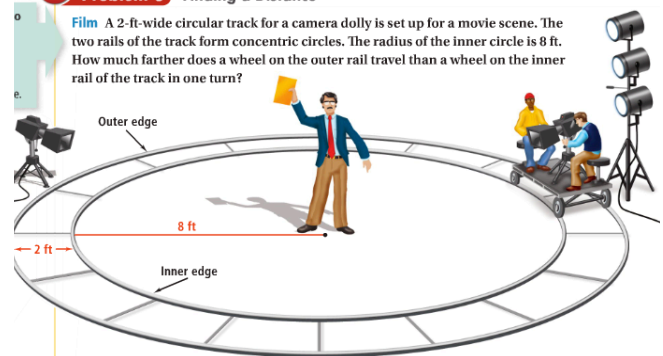
Circumference of a Circle: $C = \pi d$ or $C = 2\pi r$

- *Coplanar circles that have the same center are called concentric circles.



Problem 3 Finding a Distance

Film A 2-ft-wide circular track for a camera dolly is set up for a movie scene. The two rails of the track form concentric circles. The radius of the inner circle is 8 ft. How much farther does a wheel on the outer rail travel than a wheel on the inner rail of the track in one turn?



- 6 A car has a circular turning radius of 16.1 ft. The distance between the two front tires is 4.7 ft. How much farther does a tire on the outside of the turn travel than on the inside (round to the nearest tenth)?

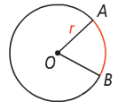
The measure of an arc is in degrees, while the arc length is a fraction of the circumference.

Take Note

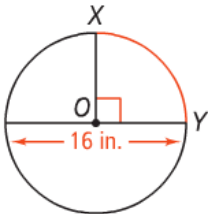
Theorem 10-10 Arc Length

The length of an arc of a circle is the product of the ratio $\frac{\text{measure of the arc}}{360}$ and the circumference of the circle.

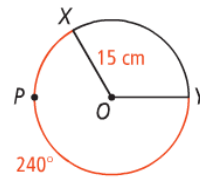
$$\begin{aligned}\text{length of } \widehat{AB} &= \frac{m\widehat{AB}}{360} \cdot 2\pi r \\ &= \frac{m\widehat{AB}}{360} \cdot \pi d\end{aligned}$$



What is the length of arc XY? Leave your answer in terms of π .



What is the length of arc XPY? Leave your answer in terms of π .



- 7 What is the length of a semicircle with radius 1.3m? Leave your answer in terms of pi.