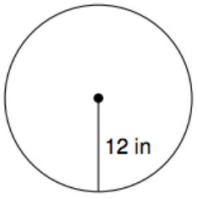
Find the area of each. Use your calculator's value of π. Round your answer to the nearest tenth.

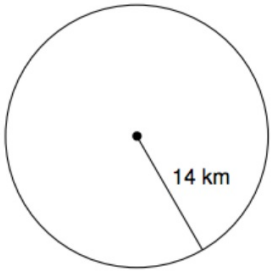
1)



$A = \pi r^2$

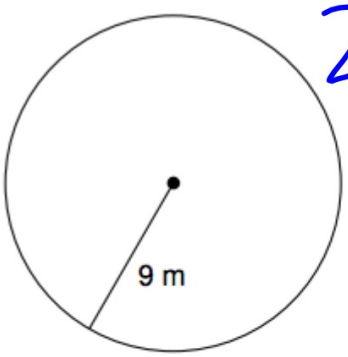
$452.4 in^2$

2)



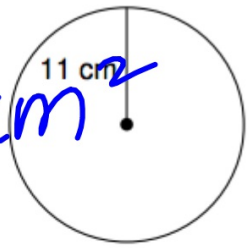
$615.8 km^2$

3)



$254.5 m^2$

4)



$380.1 cm^2$

5) radius = 2.6 in

$21.2 in^2$

6) radius = 34.1 in

$3653.1 in^2$

7) radius = 13.2 km

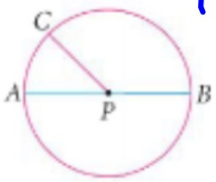
547.4 km^2

8) radius = 29.9 km

2 808.6 km^2

Objective 1: I can identify parts of a circle.

In a plane, a circle is the set of all points equidistant from a given point, called the center. You name a circle by its center. Name the circle below.



⊙P

A radius of a circle is a segment that has one endpoint at the center of the circle and the other endpoint on the circle.

A diameter of a circle is a segment that contains the center of a circle and has both endpts on the circle.

A central ∠ is an angle whose vertex is the center of the circle.

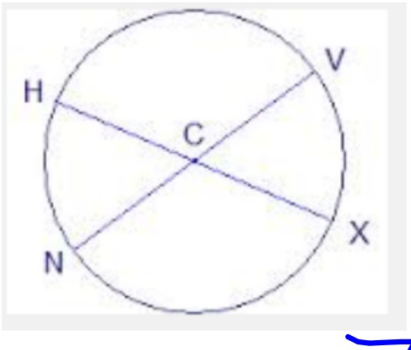
Example 1: Use the circle above to name each:

A radius: $\overline{PB}$, $\overline{PC}$, $\overline{PA}$

A diameter: $\overline{AB}$

A central angle: $\angle CPB$, $\angle APB$, $\angle APC$

QC 1: Use the circle below to name each. There may be more than one answer.



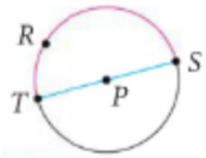
A radius $\overline{CV}$, $\overline{CN}$, $\overline{CH}$, $\overline{CX}$

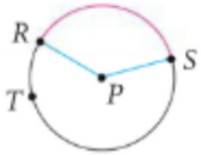
A diameter $\overline{HX}$, $\overline{NV}$

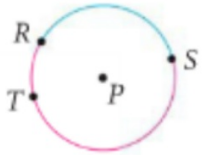
A central angle $\angle VCX$, $\angle NCH$, $\angle HCV$, $\angle NCX$

Besides radius and diameter, there are other important parts of a circle that we should know.

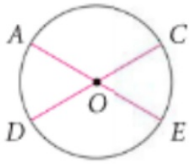
An arc is a part of a circle.
A semicircle is half the circle 180°.
A minor arc is smaller than semicircle.
A major arc is greater than a semicircle.
We write the symbol ⌒ above the letters of an arc to show it is an arc.







Example 2: Identify the following parts of circle O.



a) the minor arcs

$\overset{\frown}{AC}$ $\overset{\frown}{AD}$
$\overset{\frown}{CE}$ $\overset{\frown}{DE}$

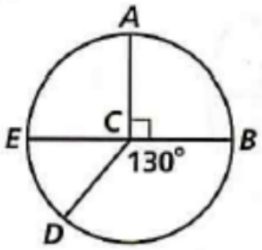
b) the semicircles

$\overset{\frown}{DEC}$ $\overset{\frown}{DAC}$
$\overset{\frown}{ADE}$ $\overset{\frown}{ACE}$

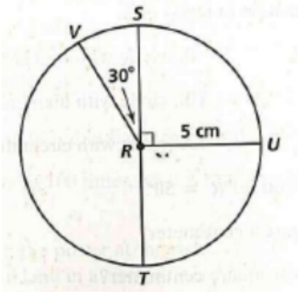
c) the major arcs that contain point A

$\overset{\frown}{AED}$ $\overset{\frown}{CAE}$

Classwork: **Use the circles to find each part.**

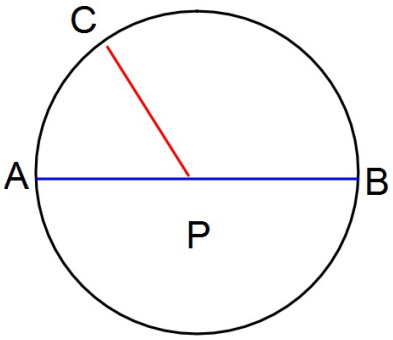


A) a radius
B) a diameter
C) a minor arc
D) a major arc
E) a semicircle
F) a major arc containing point D



A) a radius
B) a diameter
C) a minor arc
D) a major arc
E) a semicircle
F) a minor arc containing point S

Sec 10-6: Circles and Arcs.

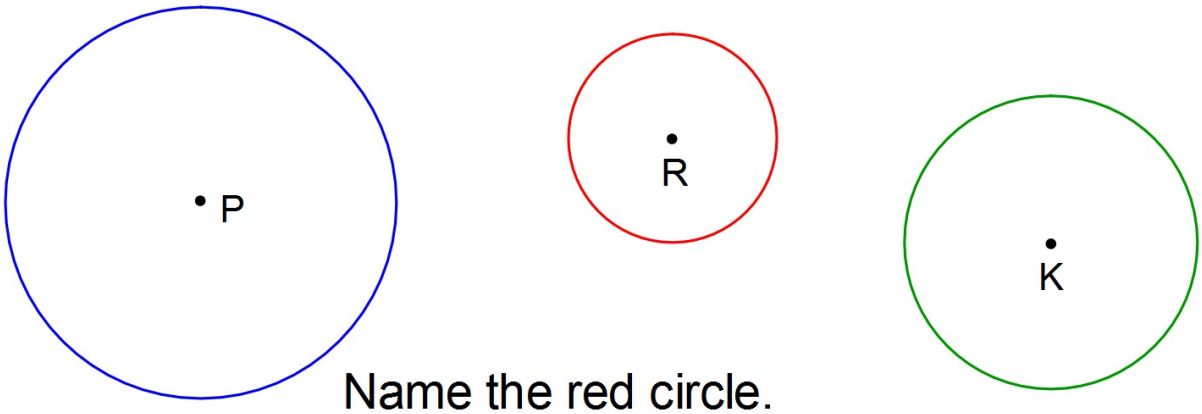


Circle: Set of all points in a plane equidistant from a given point (Center)

Radius: Segment connecting the center of a circle to any point on the circle.

Diameter: Segment connecting 2 points on a circle that passes through the center.

Central Angle: Angle whose vertex is the center of a circle.



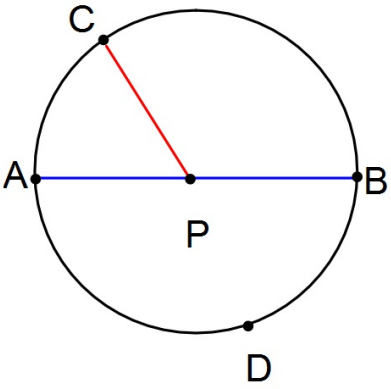
Name the red circle.

To name a circle you use the center.

Arc: Part of a circle.

To name an arc: Use two or three letter where first and last are the endpoints and the third is a point inbetween.

Symbol: "arc QR" $\overset{\frown}{QR}$



Semicircle = half of a circle.

Must use 3 letters

ex: $\overset{\frown}{ADB}$

Minor Arc < a semicircle.

2 letters

ex: $\overset{\frown}{AC}$

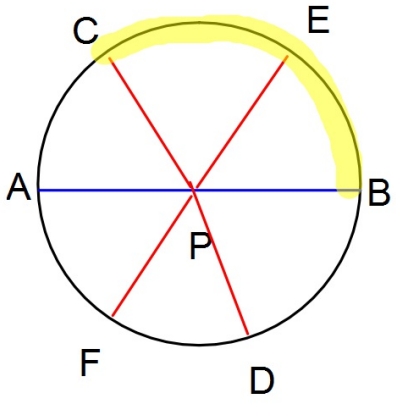
Major Arc > semicircle

Must use 3 letters

ex: $\overset{\frown}{CBA}$

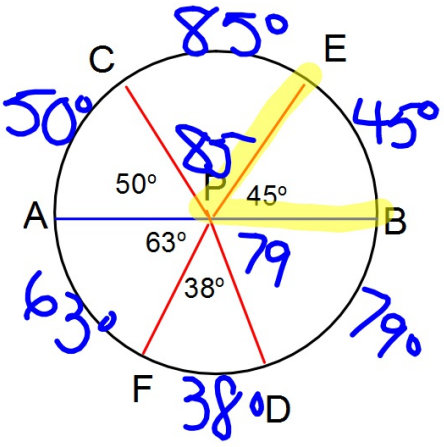
Name the highlighted arc.

$\overset{\frown}{CB}$



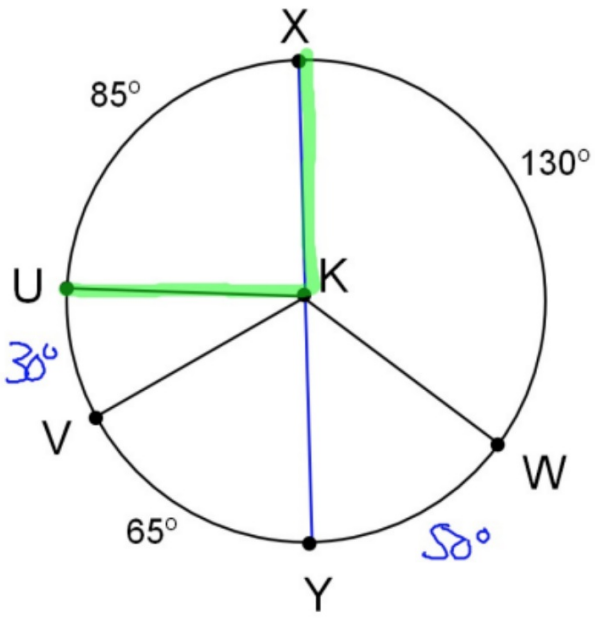
The measure of an arc is equal to its correpsonding central angle.

Find the measure of each arc.



Use circle K with diameter XY to find the measure of each Central Angle.

Arc Addition Post.



1. $\angle XKU$ 85°
2. $\angle YKW$ 50°
3. $\angle XKV$ 115°
4. $\angle UKW$ 145°
5. $\angle XKY$ 180°

Adjacent Arcs: Arcs of the same circle that have exactly one point in common.

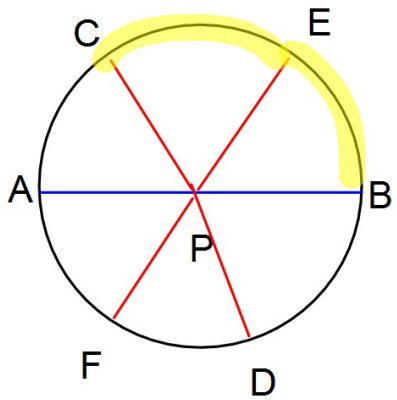
They do not overlap and there is no gap between them

Highlight two adjacent arcs.

CE EB

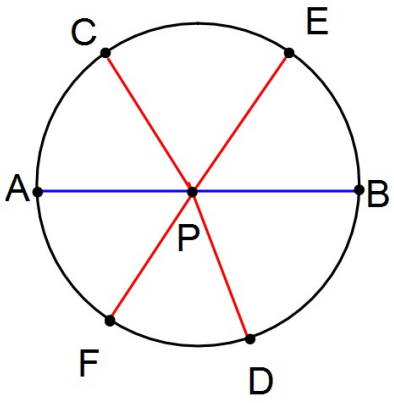
Name two adjacent arcs.

ex:



Arc Addition Postulate: The sum of two adjacent arcs

$$m\overset{\frown}{AC} + m\overset{\frown}{CE} = m\overset{\frown}{AE}$$



Circumference of a Circle:

The distance around the outside of a circle.

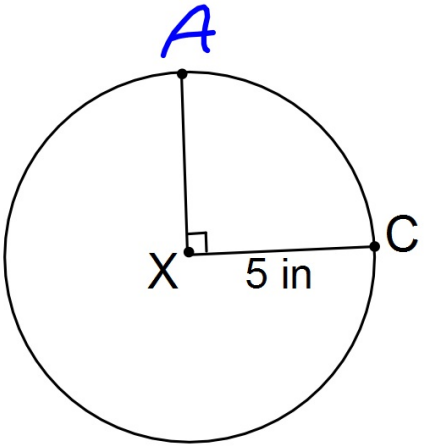
$C = 2\pi r$ or πd

Arc Length: A part of the circles circumference.
Given in units such as in., cm., ft., ...

How is arc length different from the measure of an arc?

Arc length is given in linear units (cm, in, ft...) and the measure of an arc is given in degrees.

Find the length of $\overset{\frown}{AC}$ to the nearest tenth.



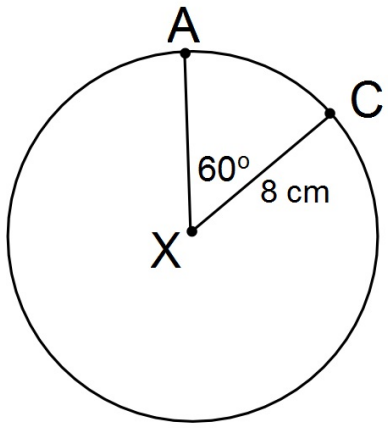
$$\frac{m\overset{\frown}{AB}}{360} \cdot 2\pi r$$

$$\frac{90}{360} \cdot 2\pi(5)$$

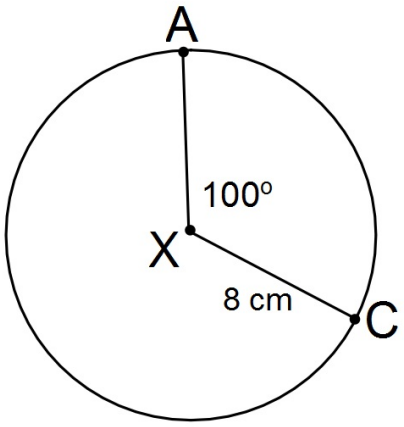
$$= 7.9 \text{ in}$$

Find the length of $\overset{\frown}{AC}$ to the nearest tenth.

$$\frac{60}{360} \cdot 2\pi(8) = 8.4\text{cm}$$



Find the length of $\overset{\frown}{AC}$ to the nearest tenth.

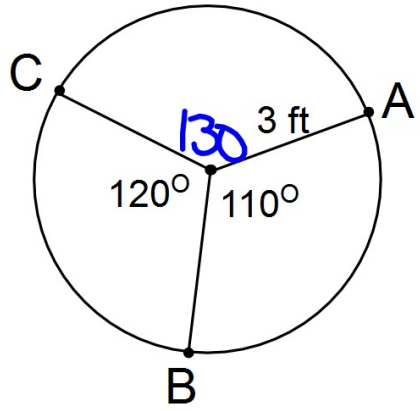


Arc Length:

$$\frac{\text{Part of a circle}}{\text{Whole circle}} = \frac{\text{Part of a circle}}{\text{Whole circle}}$$

$$\frac{\text{Length of an arc}}{\text{Circumference}} = \frac{\text{Measure of an arc}}{360^\circ}$$

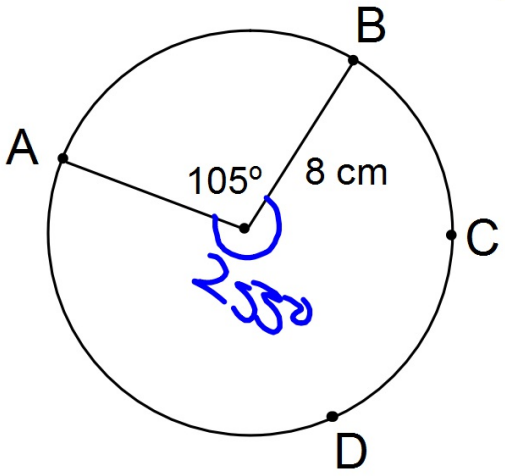
Find the length of $\overset{\frown}{AC}$ to the nearest tenth.



$\frac{130}{360} \cdot 2\pi(3)$

$= 6.8 ft$

Find the length of $\overset{\frown}{ADB}$ to the nearest tenth.



$\frac{255}{360} \cdot 2\pi(8)$

$35.6 cm$