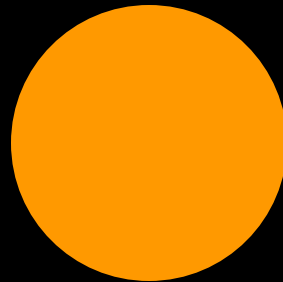
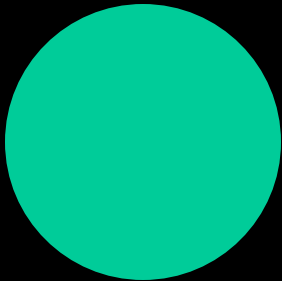
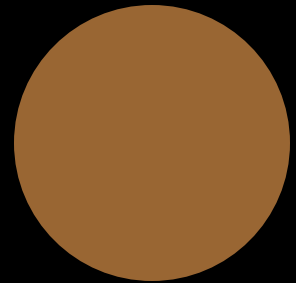
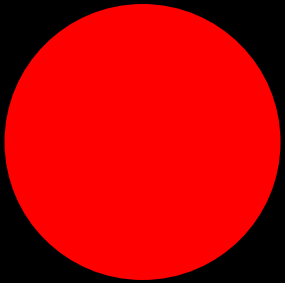
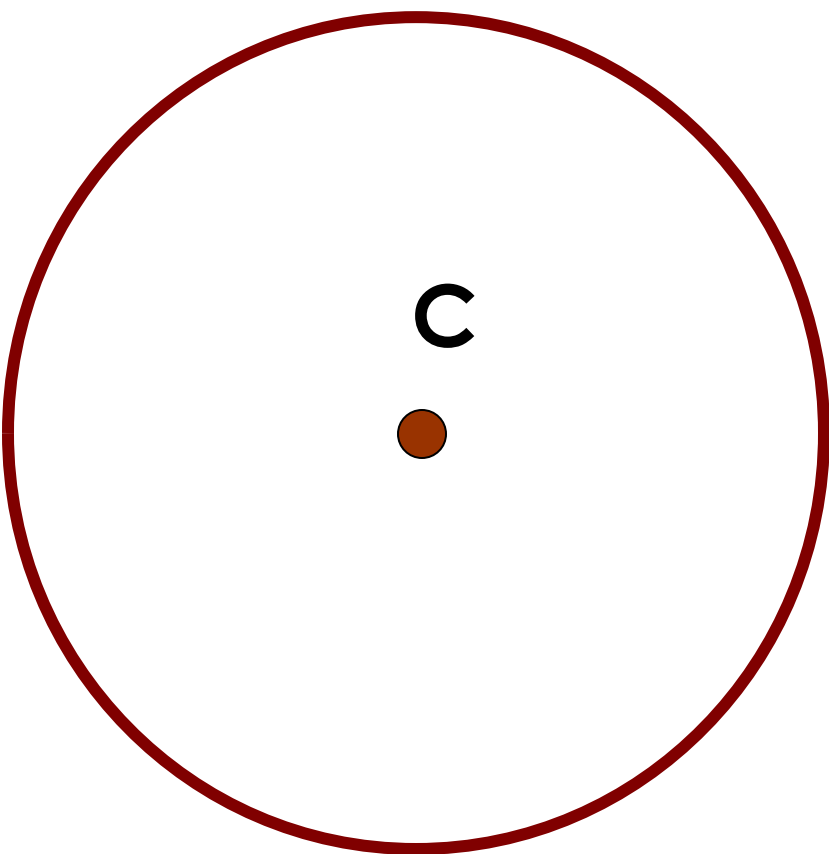


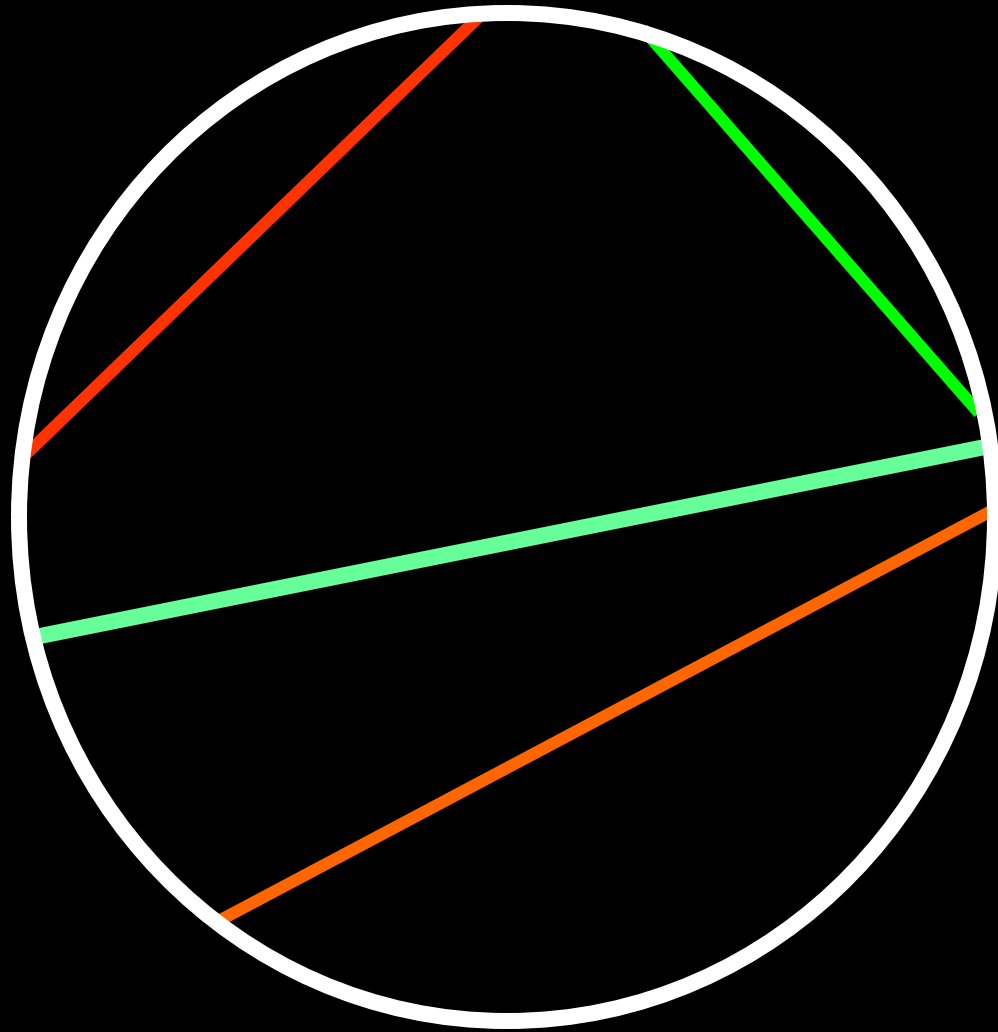
# Circle Vocabulary





Circle – set of all points equidistant from a given point called the center of the circle.

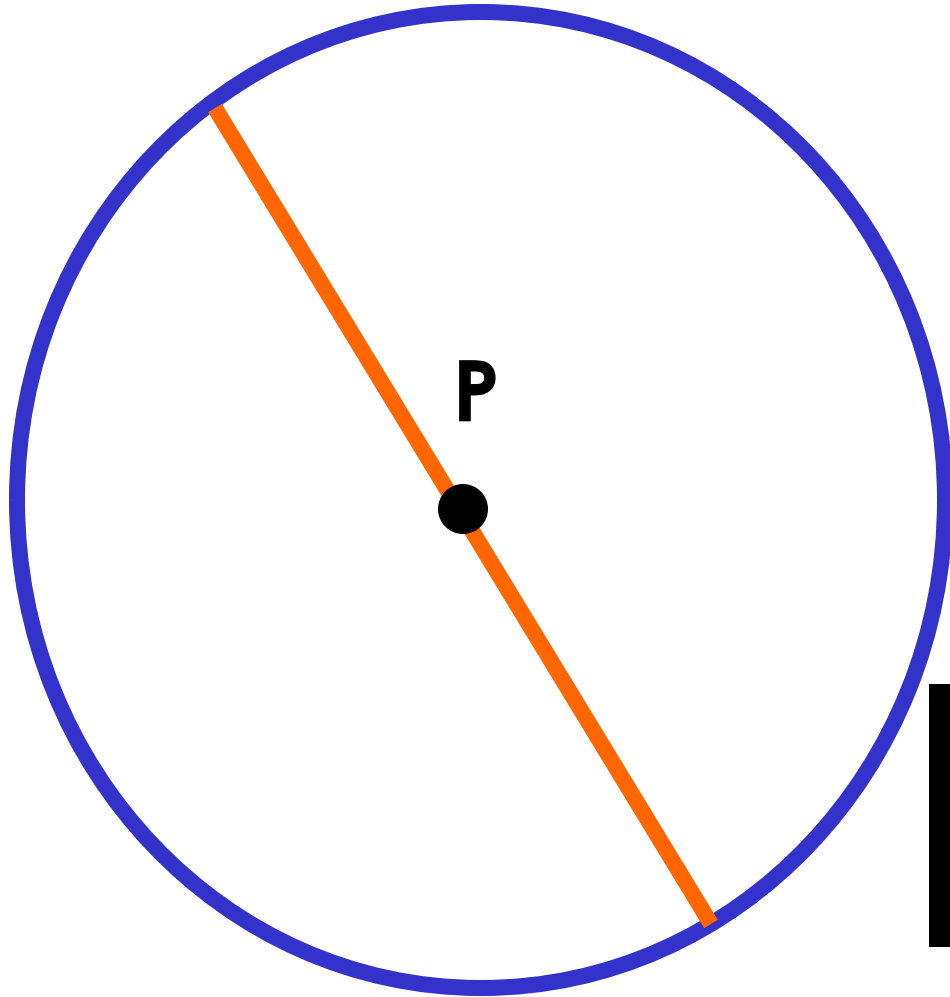
Symbol:  $\odot C$



# CHORD:

A segment whose endpoints are on the circle

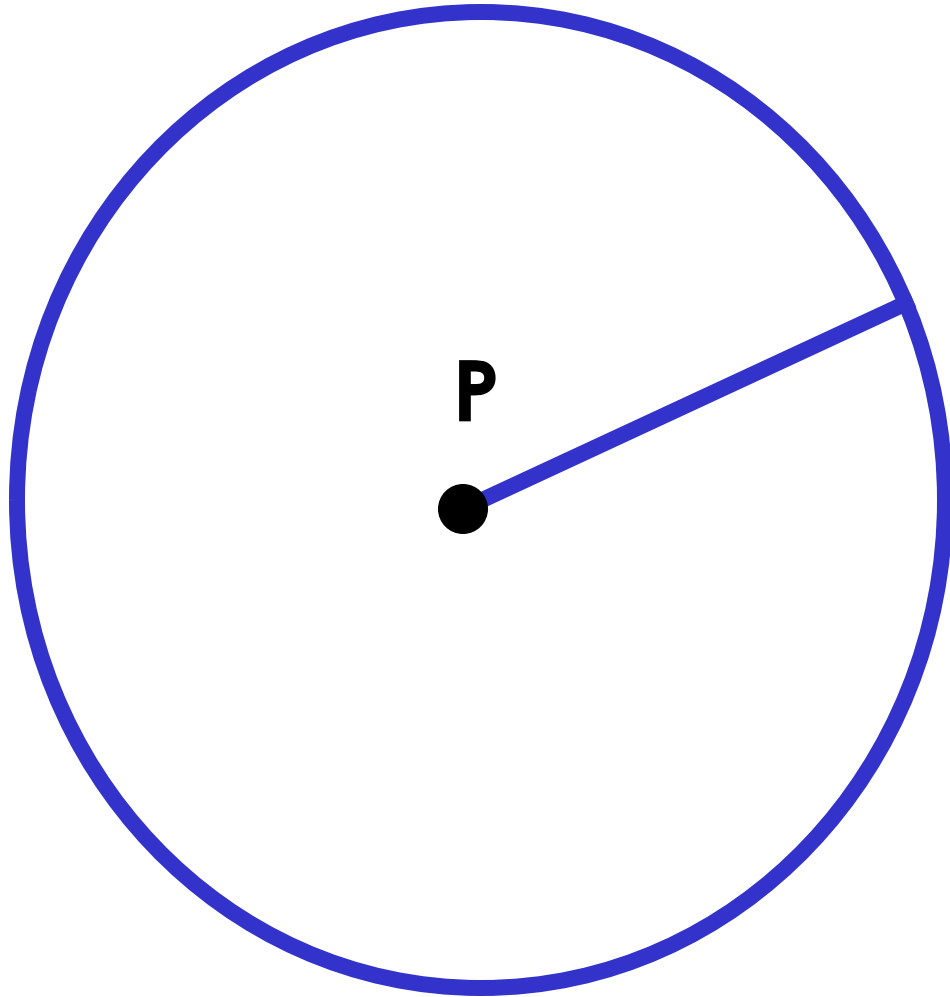
# DIAMETER:



Distance  
across the  
circle through  
its center

Also known as the  
longest chord.

# RADIUS:



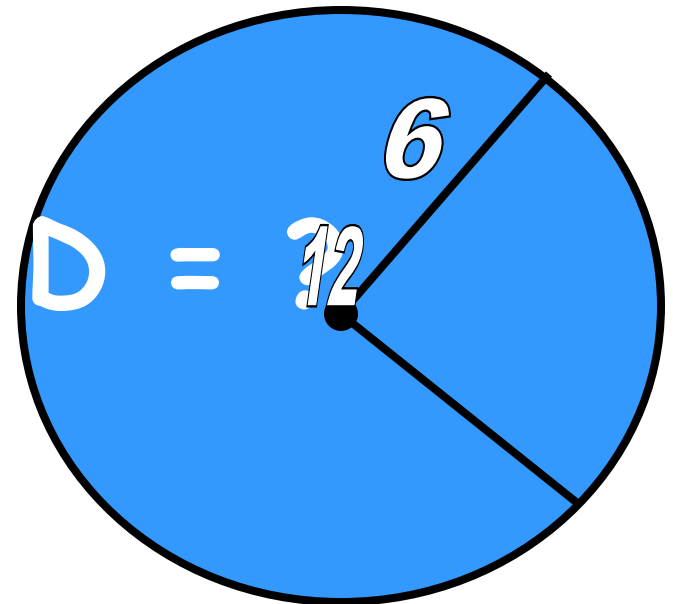
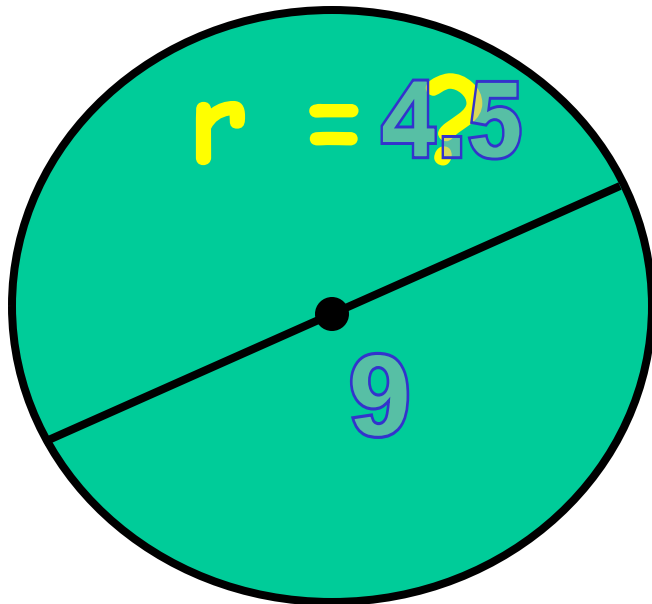
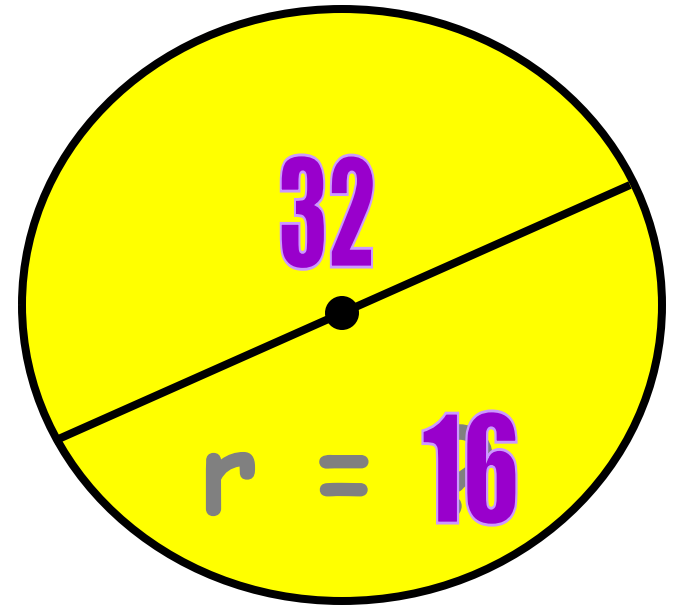
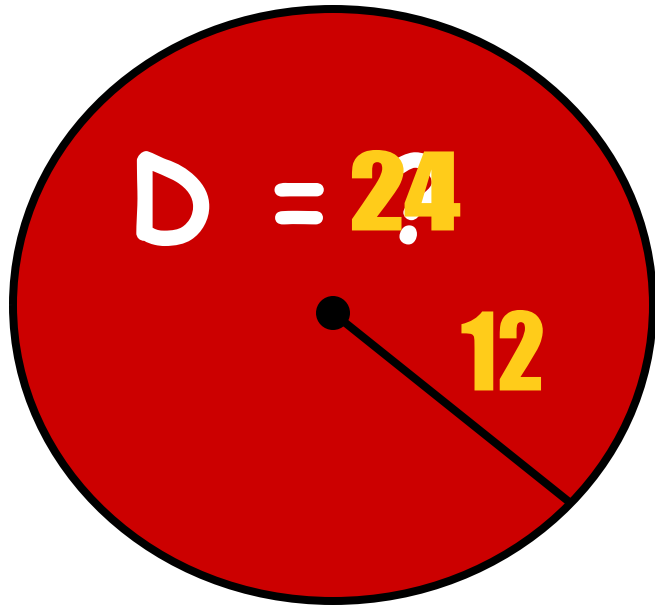
Distance  
from the  
center to  
point on  
circle

# Formula

**Radius =  $\frac{1}{2}$  diameter**

**or**

**Diameter =  $2r$**

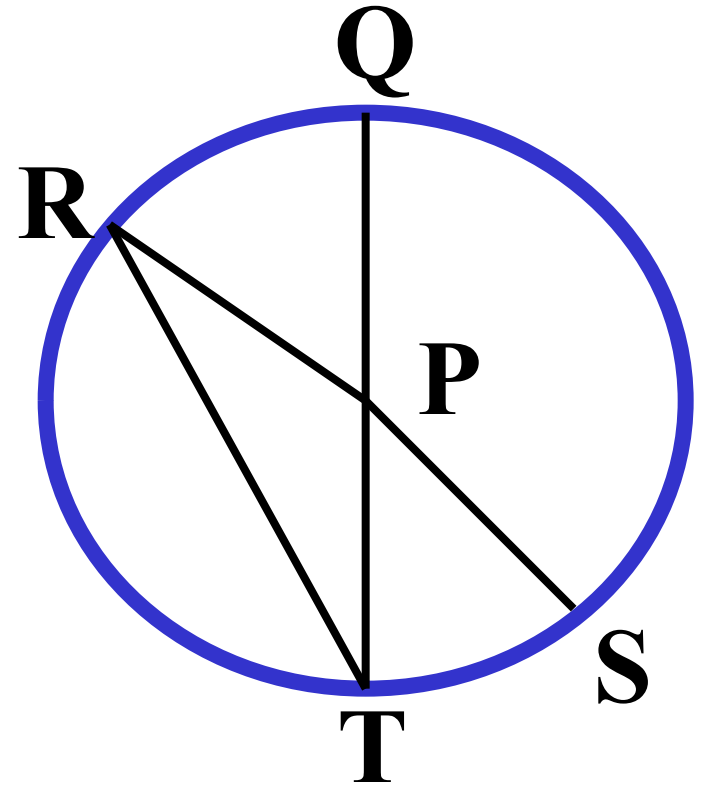


Use  $\odot P$  to determine whether each statement is *true* or *false*.

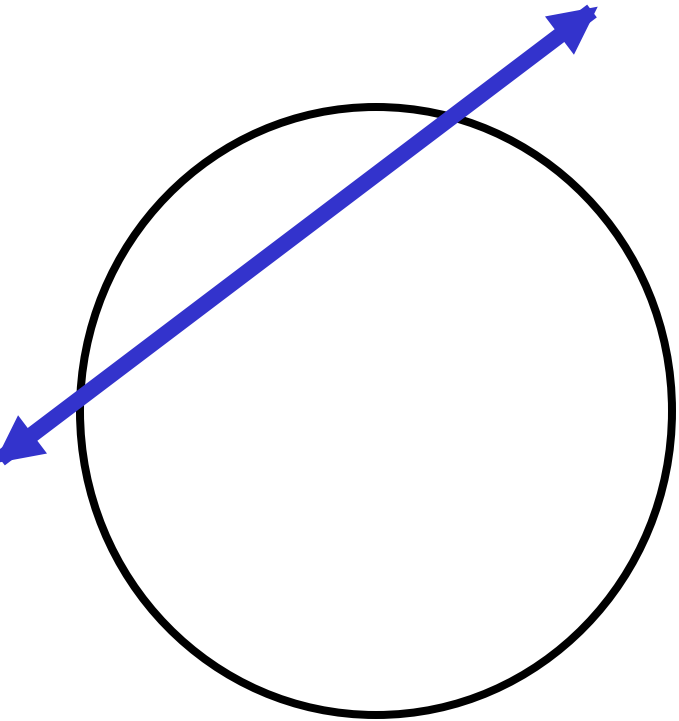
1.  $\overline{RT}$  is a diameter. *False*

2.  $\overline{PS}$  is a radius. *True*

3.  $\overline{QT}$  is a chord. *True*





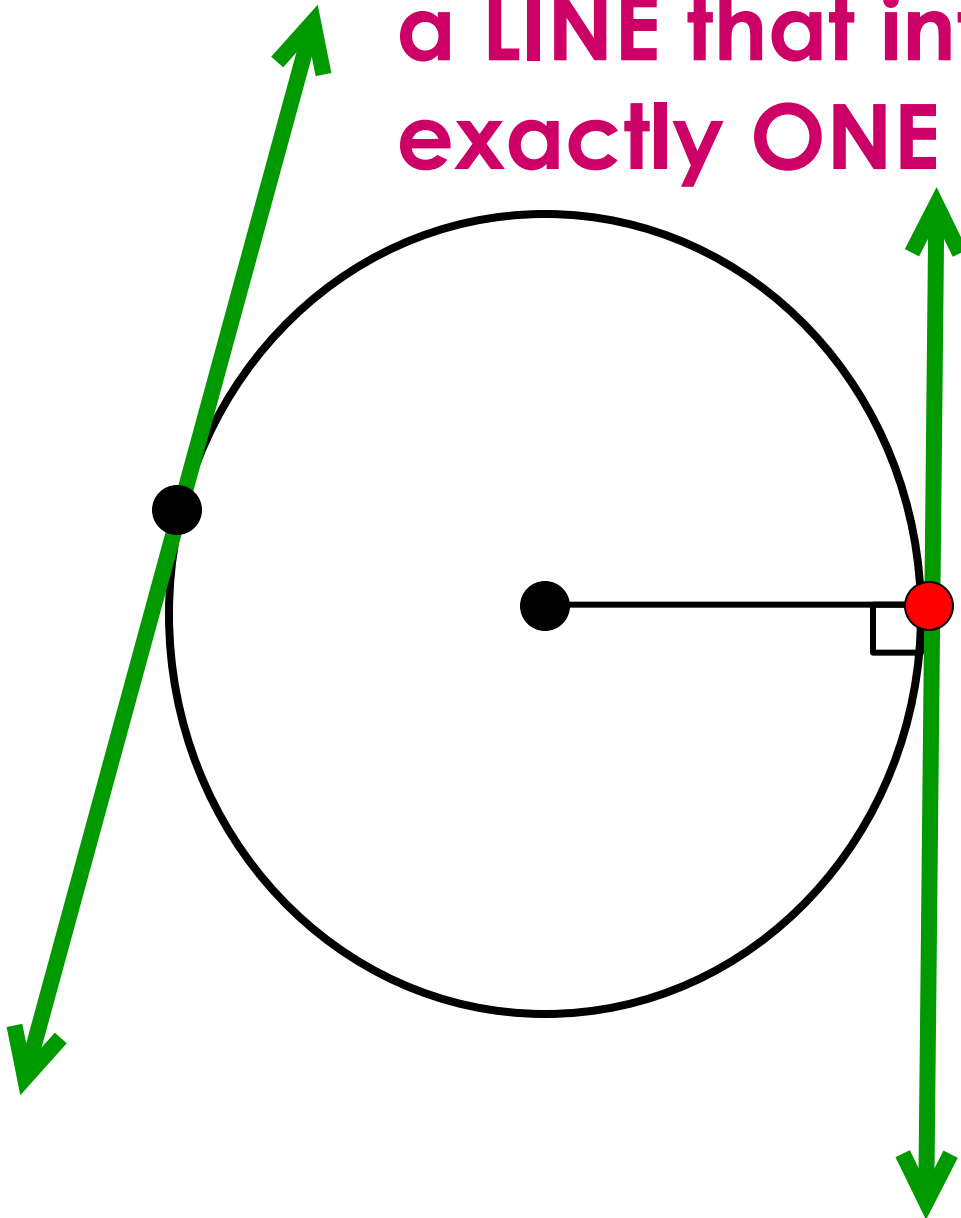


**Secant Line:**

**intersects the  
circle at  
exactly TWO  
points**

# Tangent Line:

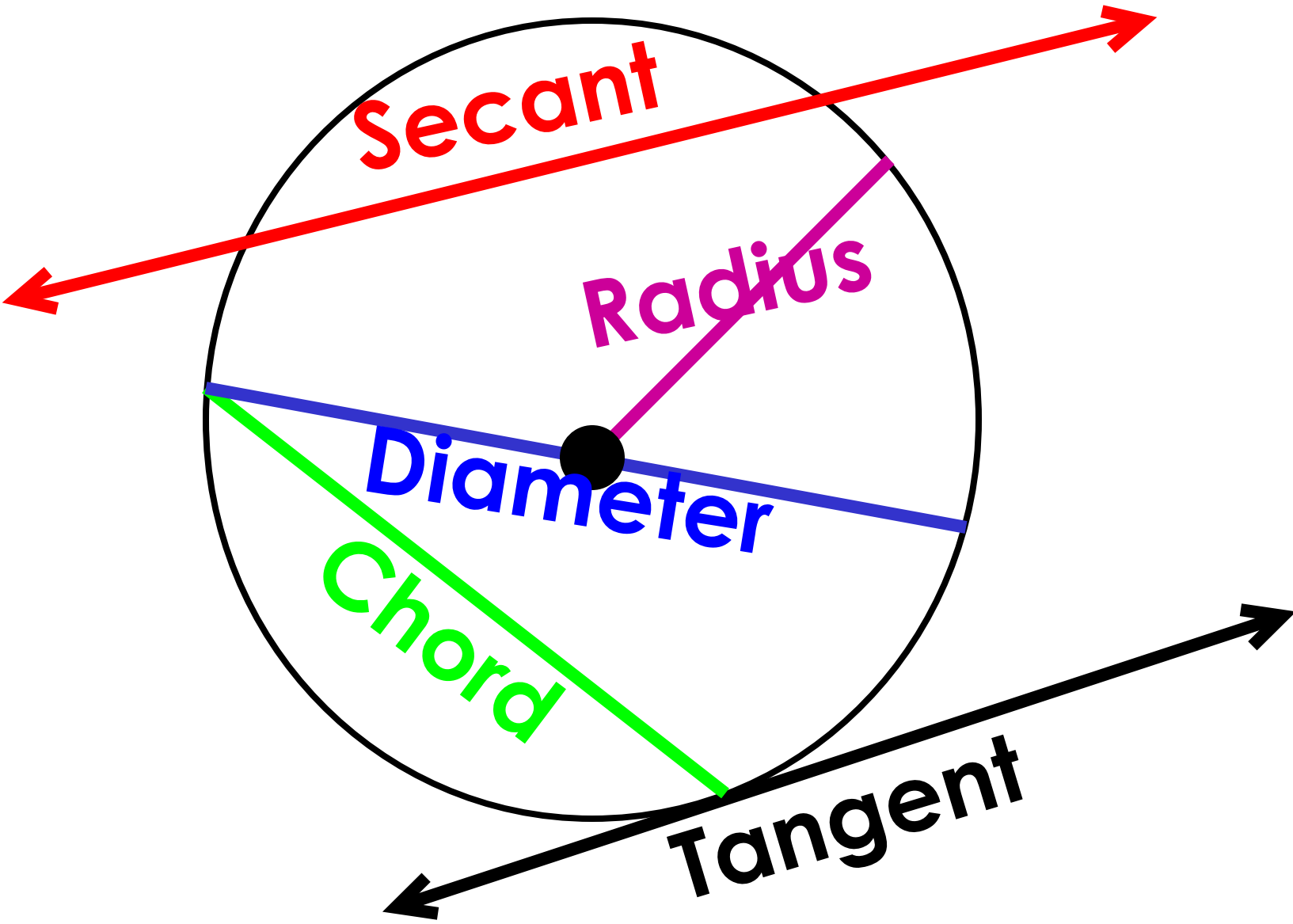
a LINE that intersects the circle exactly ONE time



Forms a  $90^\circ$  angle with one radius

**Point of Tangency:**  
The point where the tangent intersects the circle

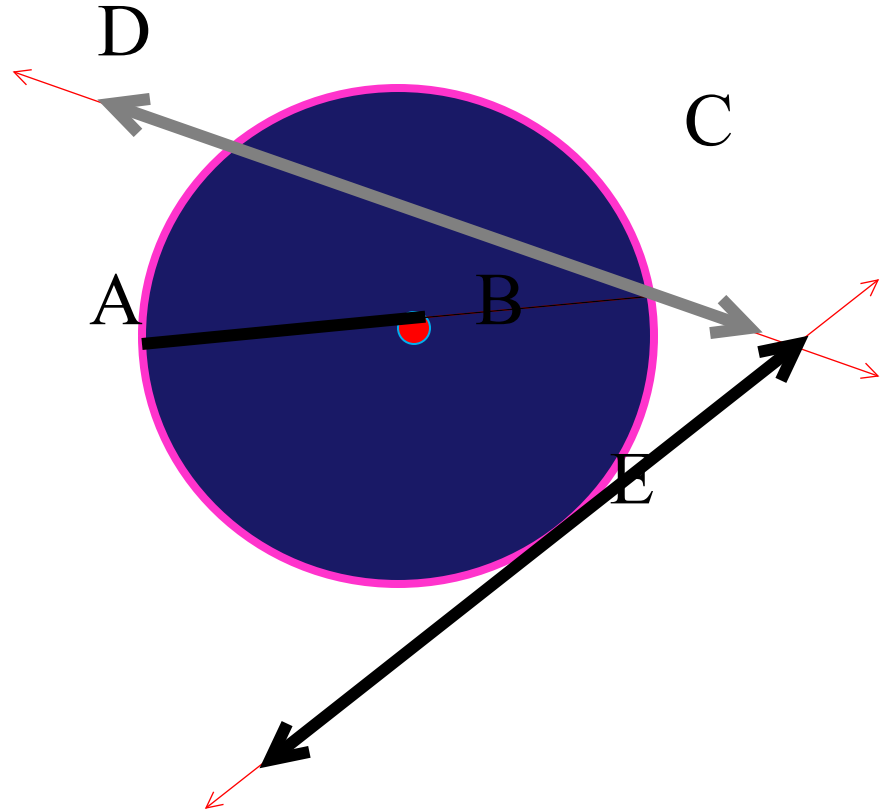
Name the term that best describes the notation.



# REVIEW

Identify the following parts of the circle.

1.  $\overline{DC}$  • chord
2.  $\overline{AB}$  • radius
3.  $\overline{AC}$  • diameter
4. line E • tangent
5.  $\langle \overline{DC} \rangle$  • secant



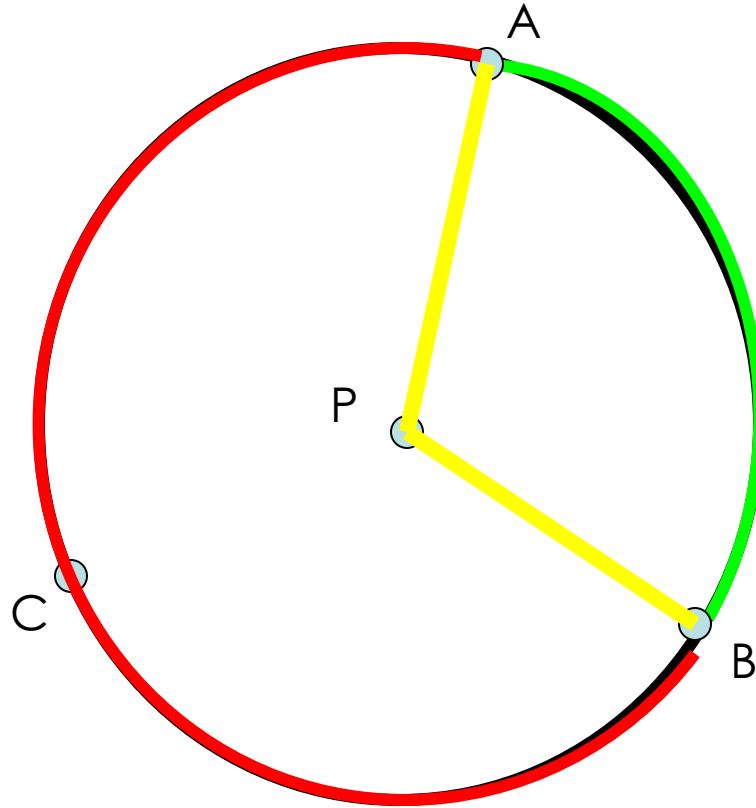
Note: The following are possible answers.

radius    diameter    chord    midpoint    secant    tangent

# Central Angles

An angle whose vertex is at the **center** of the circle

# Central angle



**APB is a Central Angle**

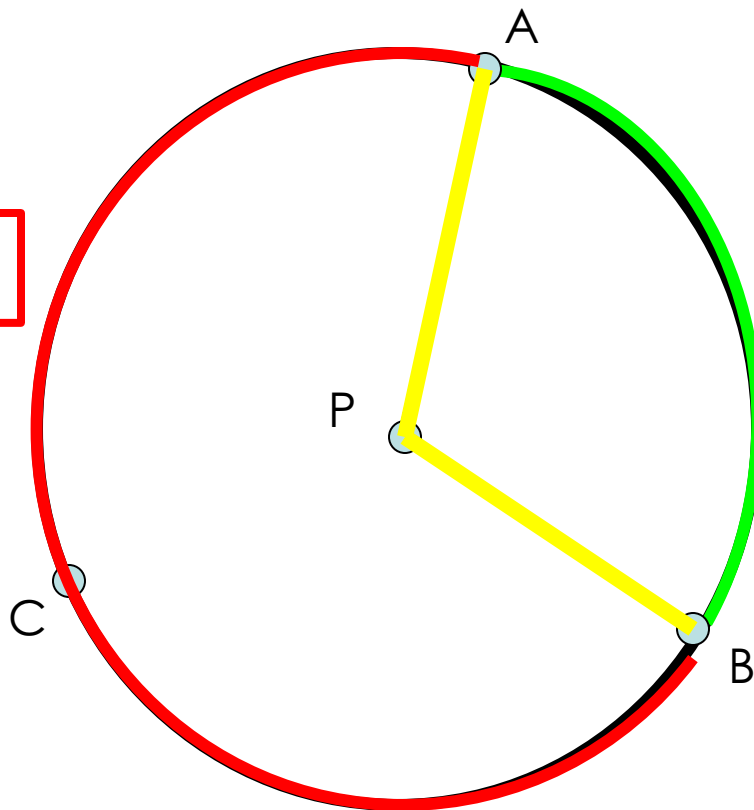
# 3 Types of Arcs

**Major Arc**

More than  $180^\circ$

$\overbrace{ACB}$

*To name:  
use 3 letters*



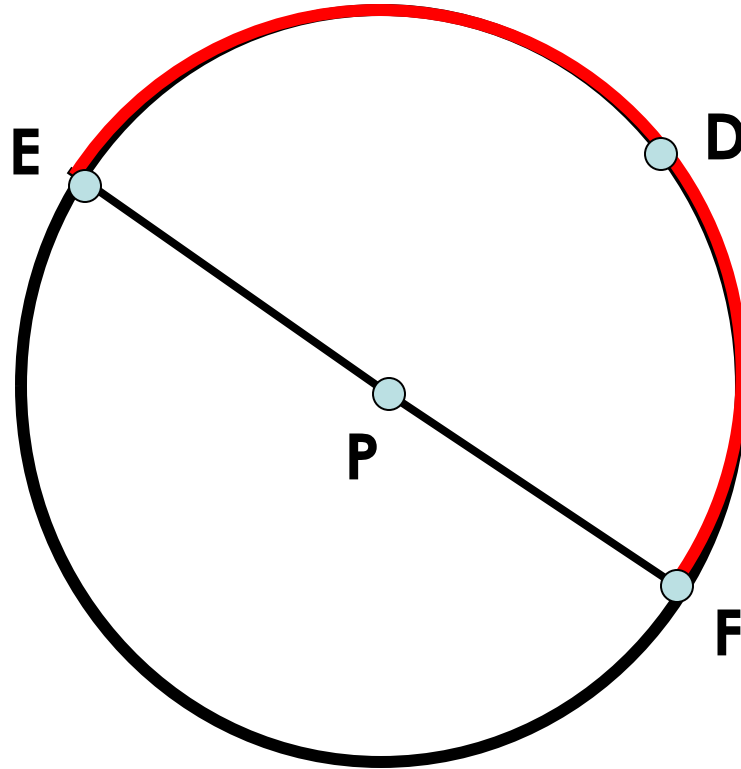
**Minor Arc**

Less than  $180^\circ$

$\overbrace{AB}$

*To name:  
use 2 letters*

**Semicircle:** An Arc that equals  $180^\circ$



*To name:  
use 3 letters*

$\overbrace{EDF}$



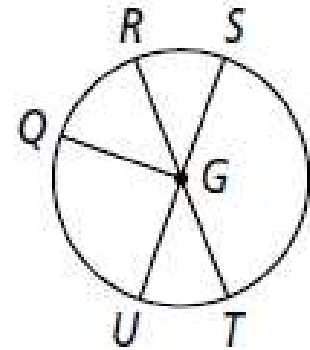
# IDENTIFY THE PARTS

---

## Circles and Arcs

Name the following in  $\odot G$ .

1. the minor arcs
2. the major arcs
3. the semicircles



# THINGS TO KNOW AND REMEMBER ALWAYS

A circle has 360 degrees

A semicircle has 180 degrees

Vertical Angles are CONGRUENT

Linear Pairs are SUPPLEMENTARY

# Formula

*measure Arc = measure Central Angle*

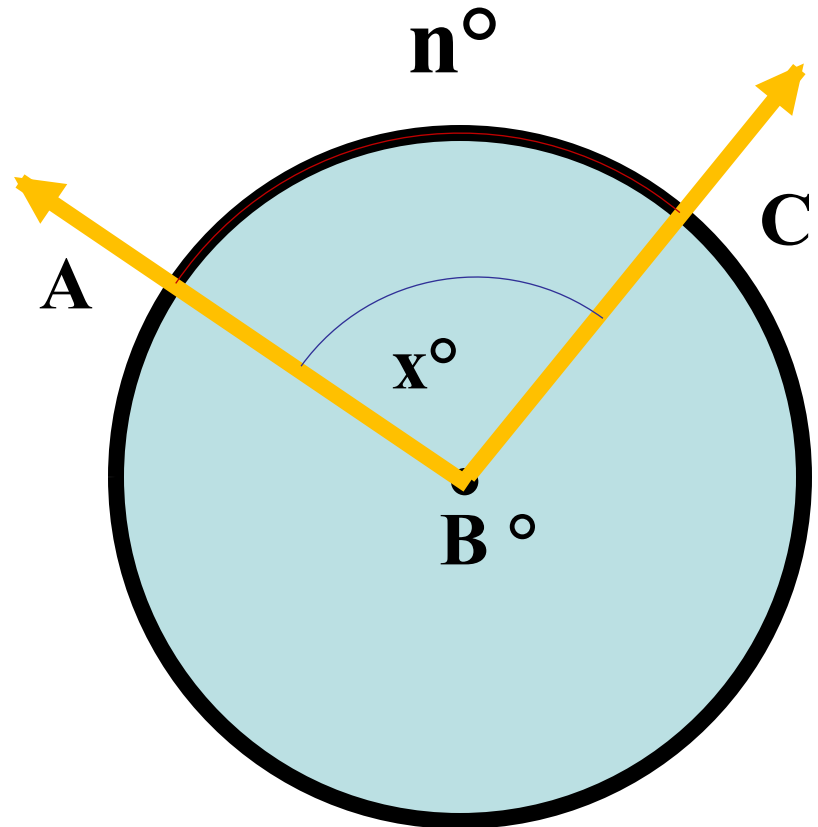
# Measure of Arcs & Angles

In a circle, the measure of the central angle is always equal to the measure of its intercepted arc.

$$x = n$$
$$m \angle ABC = m \widehat{AC}$$

- If  $\angle ABC$  is  $80^\circ$ , what is the measure of arc AC?

$$m \widehat{AC} = 80^\circ$$



# Measure of Arcs & Angles

**EXAMPLE:** In the diagram below, if the  $m \angle xyz$  is  $68^\circ$ , find the measure of a.) minor arc and b.) major arc.

**SOLUTION:**

a. measure of minor arc

$$m \angle xyz = m \widehat{xz} \text{ (since } \angle xyz \text{ is a central angle)}$$

$$m \widehat{xz} = 68^\circ$$

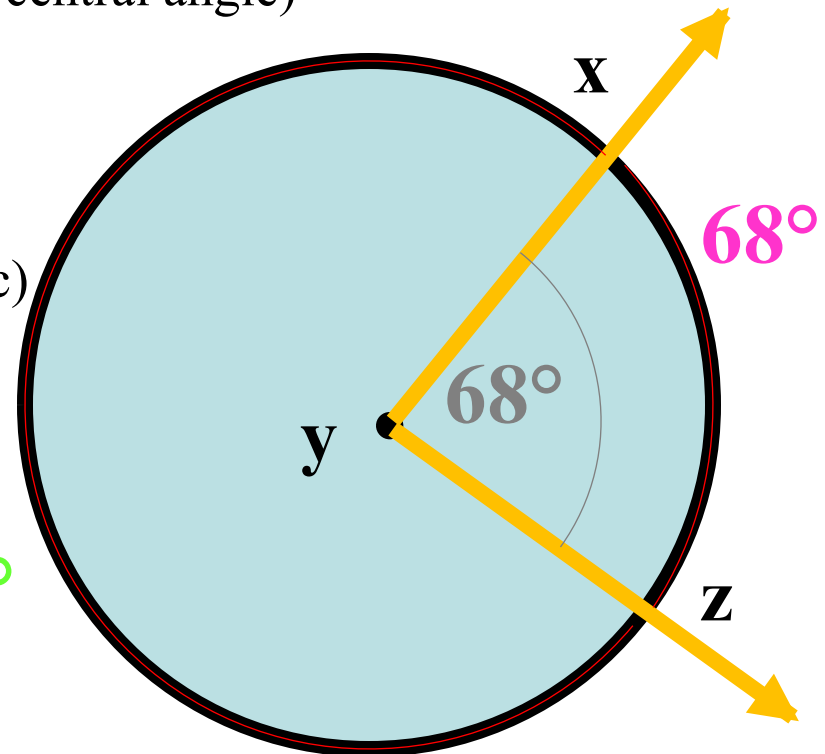
b. measure of major arc

$$\text{major arc} = 360^\circ - m \widehat{xz} \text{ (minor arc)}$$

$$= 360^\circ - 68^\circ$$

$$m \widehat{xz} \text{ (major arc)} = 292^\circ$$

$$292^\circ$$



Find the measure of each arc in  $\odot B$ .

4.  $\widehat{GJ}$

7.  $\widehat{GJI}$

10.  $\widehat{HGJ}$

13.  $\widehat{HJI}$

5.  $\widehat{HI}$

8.  $\widehat{GHJ}$

11.  $\widehat{GH}$

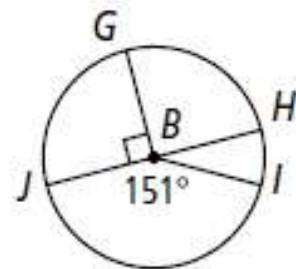
14.  $\widehat{JHI}$

6.  $\widehat{HIJ}$

9.  $\widehat{GJH}$

12.  $\widehat{GHI}$

15.  $\widehat{JIG}$



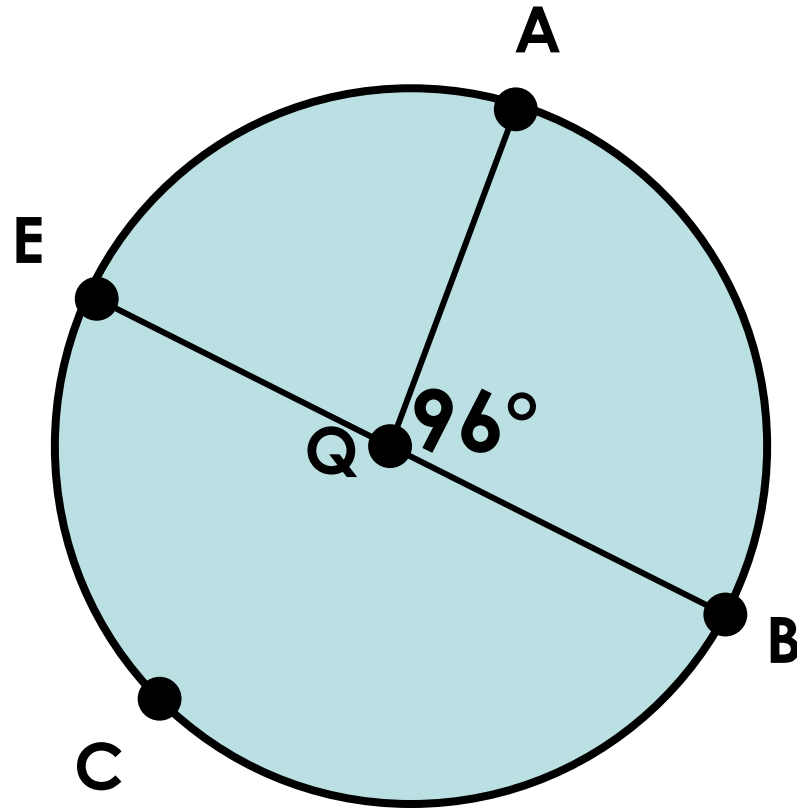
# Find the measures.

*EB is a diameter.*

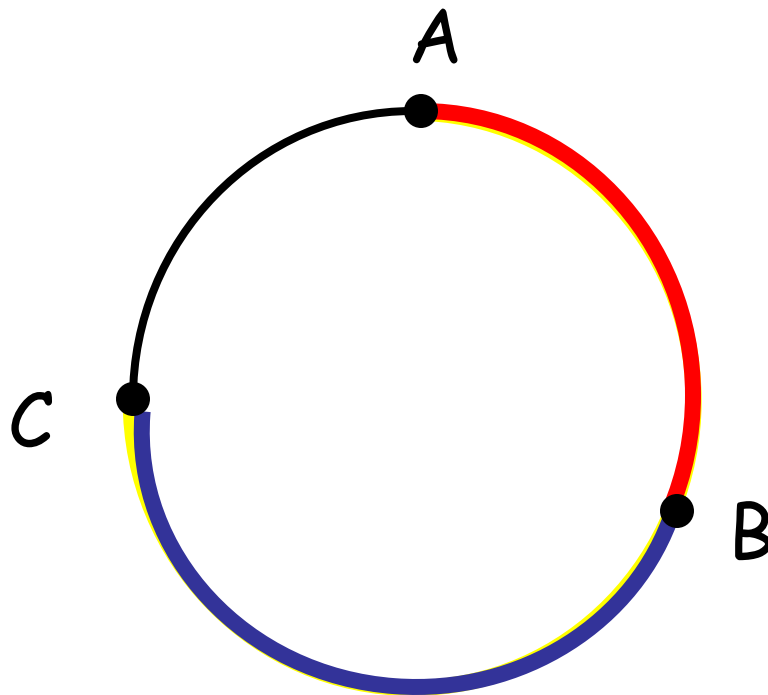
$$m \widehat{AB} = 96^\circ$$

$$m \widehat{ACB} = 264^\circ$$

$$m \widehat{AE} = 84^\circ$$



# Arc Addition Postulate



$$\underline{m \widehat{ABC}} = \underline{m \widehat{AB}} + \underline{m \widehat{BC}}$$

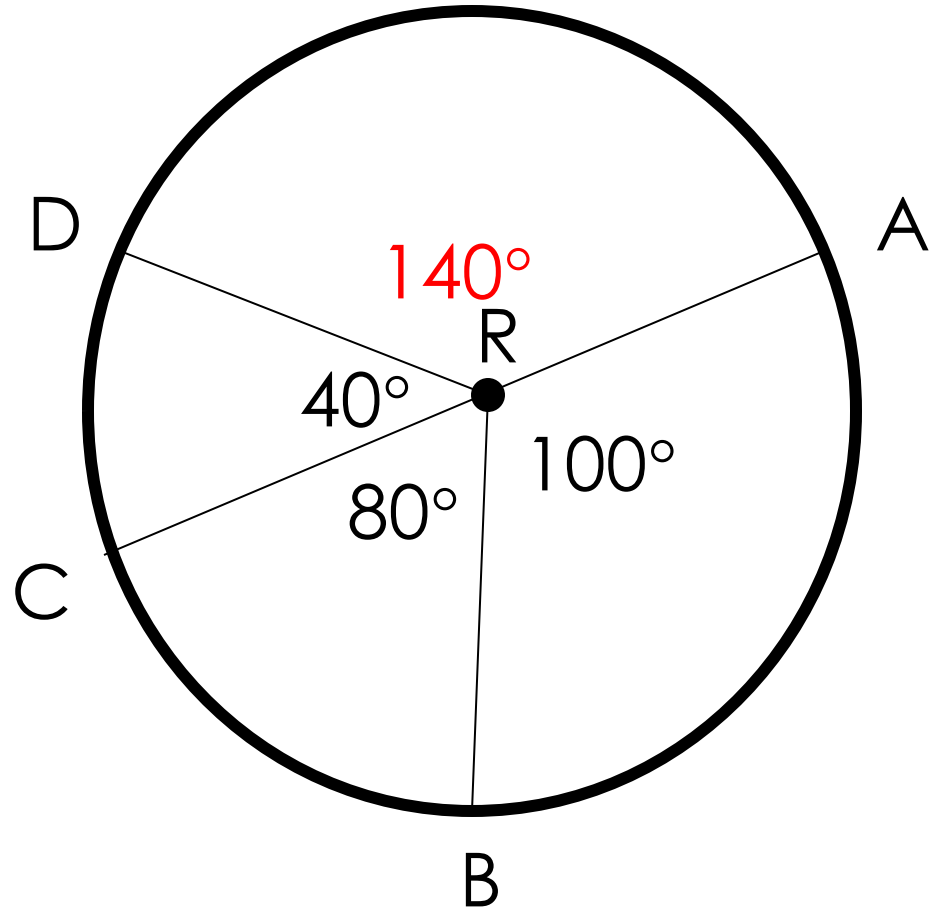


Tell me the measure of the following arcs.

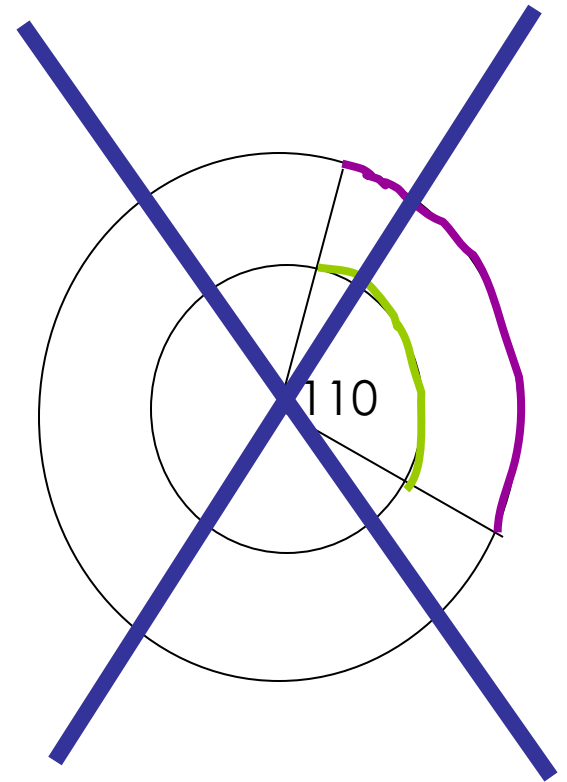
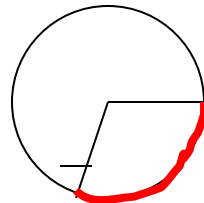
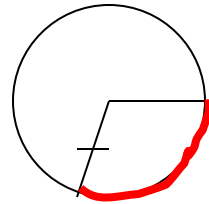
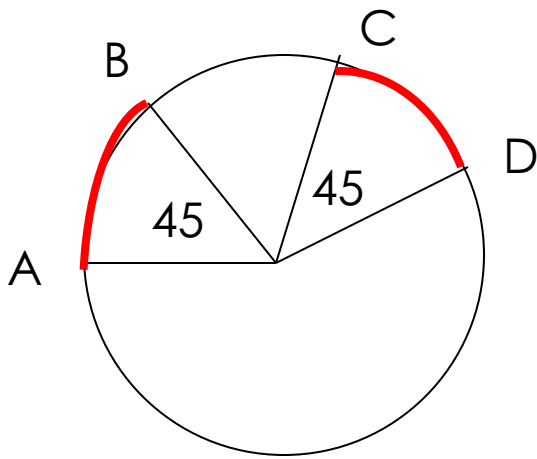
AC is a diameter.

$$m \widehat{DAB} = \mathbf{240^\circ}$$

$$m \widehat{BCA} = \mathbf{260^\circ}$$



Congruent Arcs have the same measure and **MUST** come from the same circle or of congruent circles.



Arc length is proportional to "r"

# Textbook

**p. 396 #11**

**p. 404 #11 – 16, 25 – 30, 38**