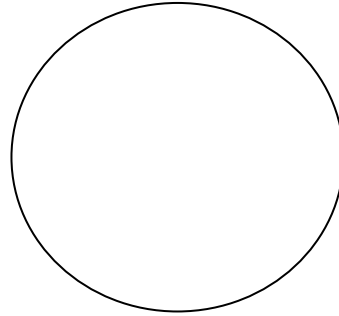
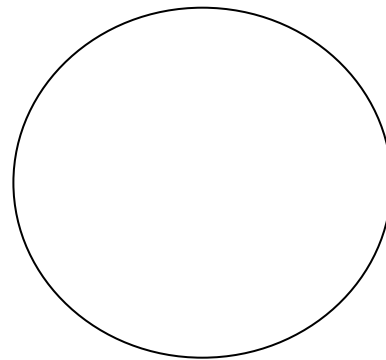
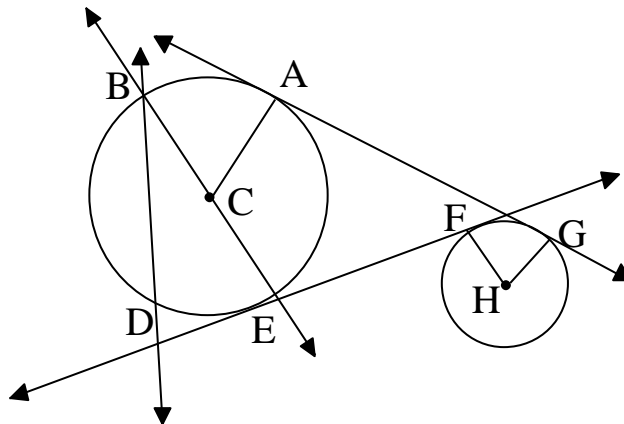


**Day 1 Circle Basics**

**Objectives:** **SWBAT** identify segments and lines related to circles.  
**SWBAT** Use properties of a tangent to a circle.

**A. Definitions in Circles****1. Circle****2. Radius****2. Diameter****3. Chord****4. Interior of a Circle****5. Exterior of a Circle****6. On the Circle**

Use the diagram to find the following segments (name all).

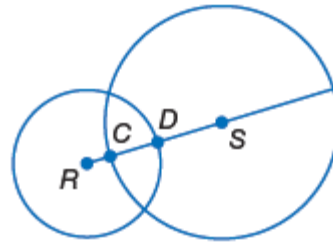
**1. Chords****2. Diameters****4. Radii****5. Center of a Circle**

## Diameter of a Circle Formula

### Examples:

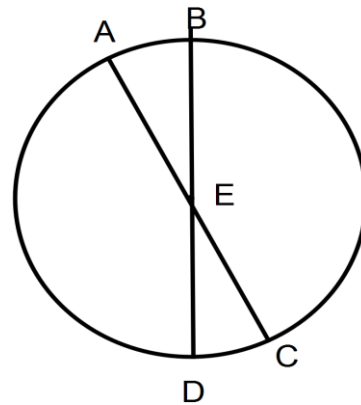
Use the diagrams to find the following.

1. The diameter of  $\odot S$  is 30 cm.  
The diameter of  $\odot R$  is 20 cm.  
 $DS = 9$   
Find the length of  $CD$ .



All Radii the same circle are \_\_\_\_\_.

2. Given:  $DB = 13$  units long  
Find the length of  $EC$ .



## Area of a Circle Formula

## Circumference of a Circle Formula

The \_\_\_\_\_ is the common variable in all three of the above formulas.

Find the following.

3. A circle has a radius of 3ft. What's the diameter?
4. A circle has a diameter of 5in. What's the radius?

5. If a circle has a diameter of 6ft. What's the Circumference?
6. What is the area of a circle if the circumference is  $20\pi$  in?
7. Using a string a student decided to determine the diameter of a large trash can. If the string 60 inches long will wrap around the trash can, what is approximate diameter of the trash can?

## Day 2 Central Angles and Arcs

**Objectives:** **SWBAT** use properties of arcs of circles.  
**SWBAT** use properties of chords of circles.

**360 Degree Theorem -**

**Central Angle -**

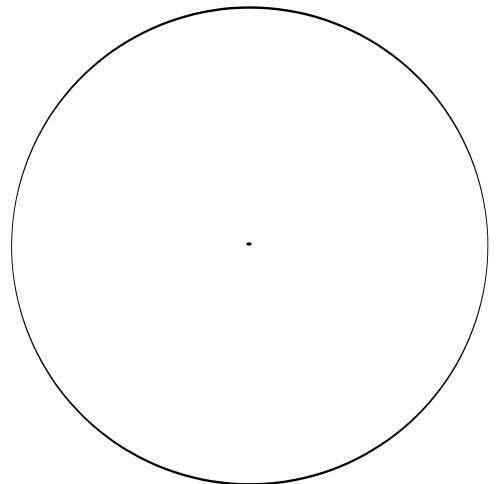
**Arc -**

**Minor Arc -**

**Major Arc -**

**Semicircle -**

**Central Angle - Arc Theorem**



When reading an arc and finding the measurements of arcs, you should always use the \_\_\_\_\_ path.

**Examples:**

$\overline{MQ}$  and  $\overline{NR}$  are diameters. Find the indicated measure.

1.  $m\widehat{MN}$

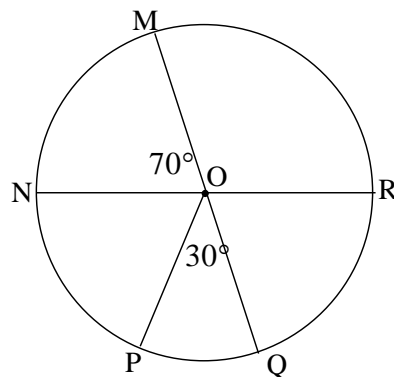
2.  $m\widehat{NQ}$

3.  $m\widehat{NQR}$

4.  $m\widehat{MRP}$

5.  $m\widehat{QR}$

6.  $m\widehat{MR}$



**Arc Length Formula**

**Find the length of the following arcs.**

7.  $\widehat{UR}$

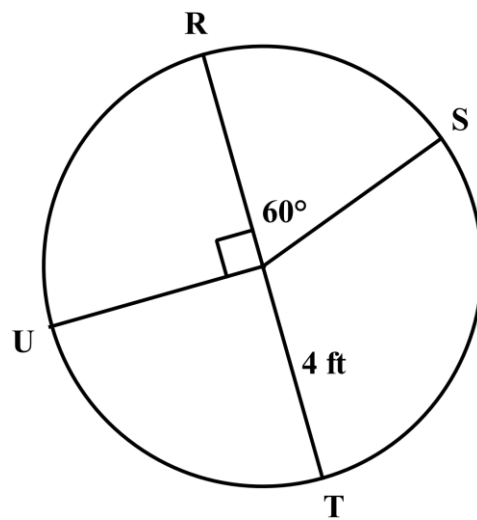
8.  $\widehat{RS}$

9.  $\widehat{STU}$

10.  $\widehat{RT}$

11.  $\widehat{URS}$

12.  $\widehat{ST}$



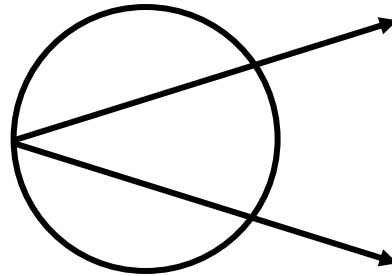
## Day 3 Inscribed Angles

**Objectives:** **SWBAT** use inscribed angles to solve problems.  
**SWBAT** use properties of inscribed polygons.

**Inscribed angle:**

**Intercepted Arc:**

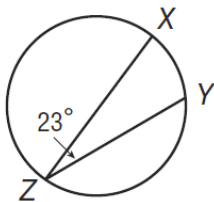
**Measure of Inscribed Angle**



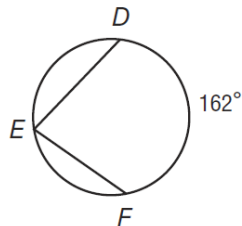
**Examples:**

Find the measure of the indicated arc or angle in  $\odot O$ .

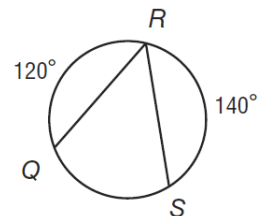
1.  $m\widehat{XY}$



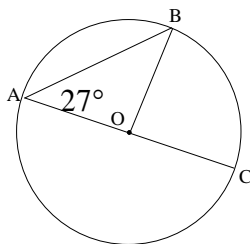
2.  $m\angle E$



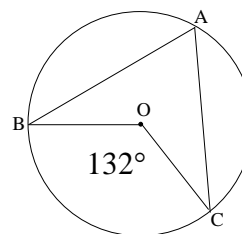
3.  $m\angle R$



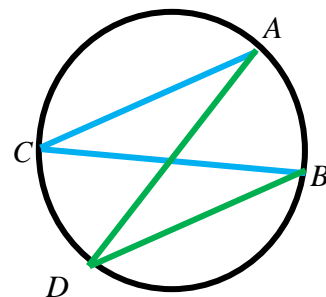
4.  $m\widehat{BC}$



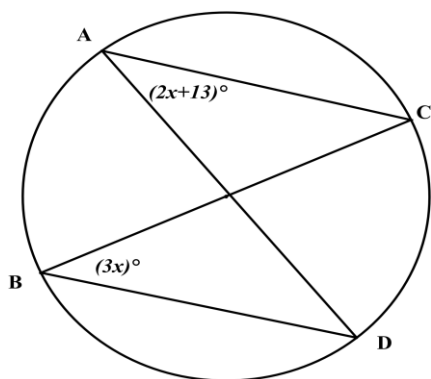
5.  $m\angle BAC$



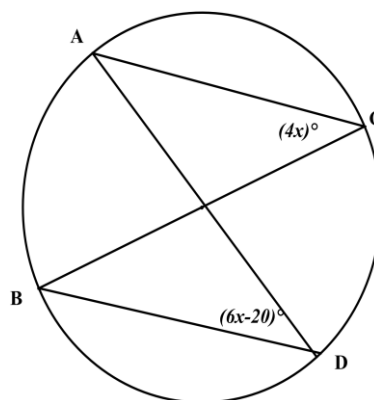
**Two Inscribed Angles Theorem**



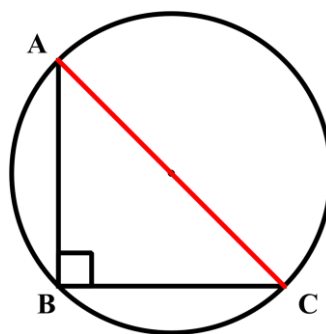
7. Find  $x$



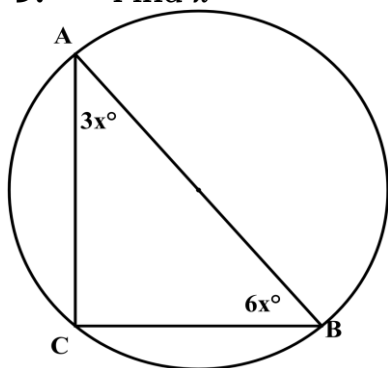
8. Find  $\widehat{mAB}$



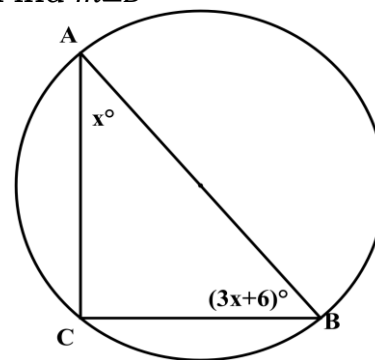
## Inscribed Right Triangle Theorem



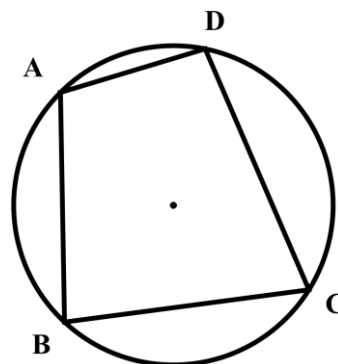
9. Find  $x$



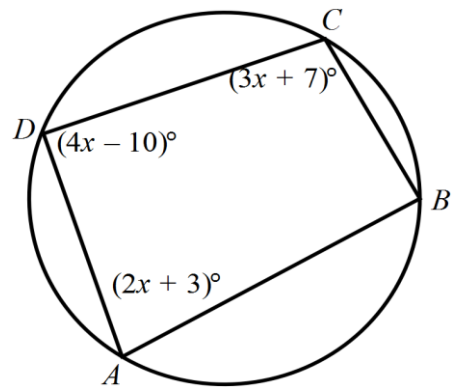
10. Find  $m\angle B$



## Inscribed Quadrilateral Theorem



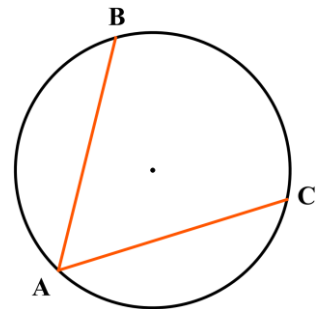
11. Find the value of  $x$



## Day 4 Chords and Arcs

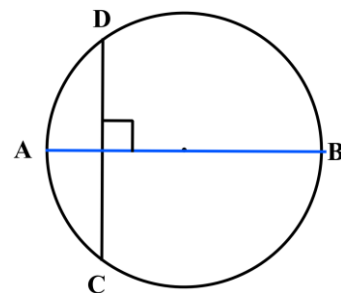
**Objectives:** **SWBAT** use properties of arcs of circles.  
**SWBAT** use properties of chords of circles.

### 1. Chord – Arc Theorem

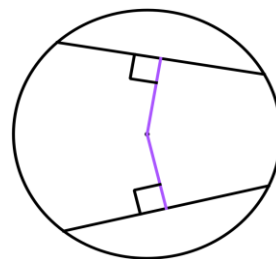


### 2. Perpendicular Bisector of a Circle Theorem

**Converse**



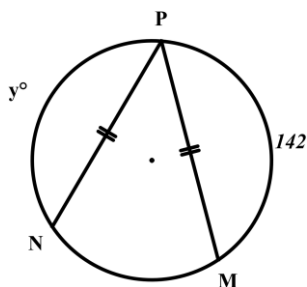
### 3. Equidistant Chord Theorem



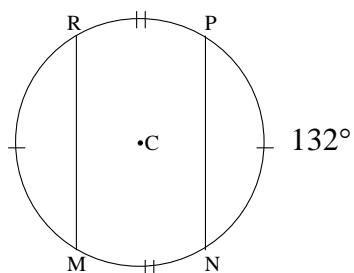
## Examples:

Find the measure of  $\widehat{MN}$ .

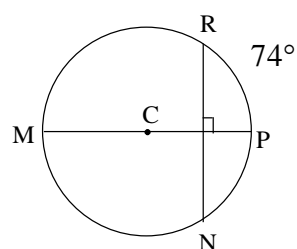
1.



2.

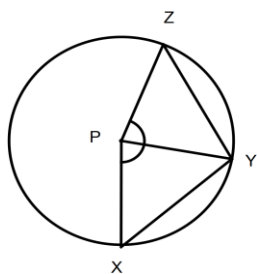


3.

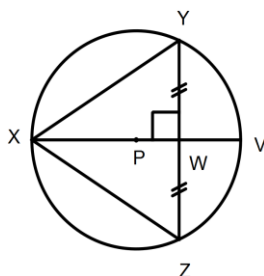


**P is the center of the circle. Use the given information to find XY.**

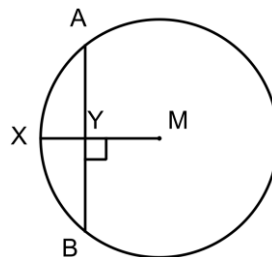
4.  $ZY = 3$



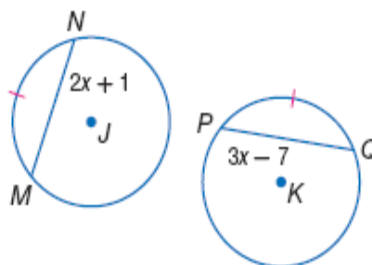
5.  $ZY = 6, XW = 4$



6. Radius = 10,  $AB = 8$

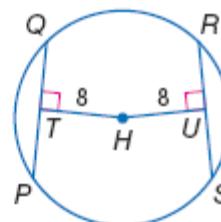


7. **ALGEBRA** In the figures,  $\odot J \cong \odot K$  and  $\widehat{MN} \cong \widehat{PQ}$ . Find  $PQ$ .



8.

In  $\odot H$ ,  $PQ = 3x - 4$  and  $RS = 14$ . Find  $x$ .

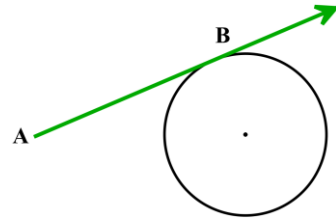




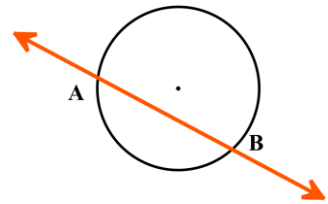
## Day 5 Tangents of Circles

**Objectives:** **SWBAT** identify segments and lines related to circles.  
**SWBAT** Use properties of a tangent to a circle.

## Tangent

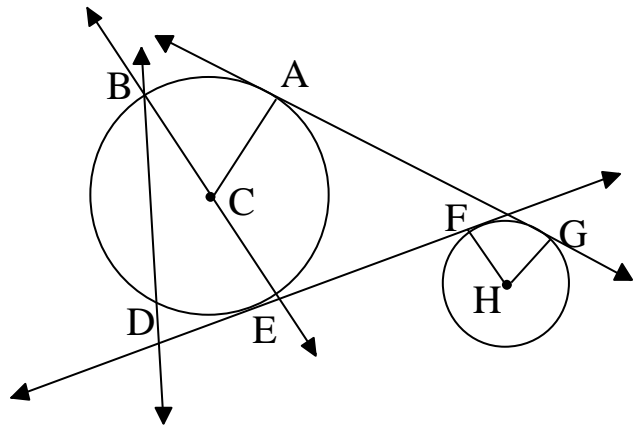


## Secants

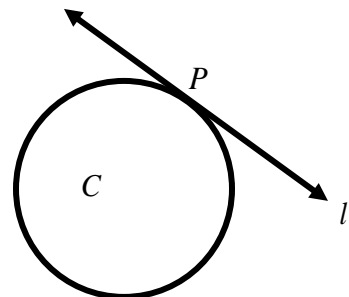


### Examples:

- |                    |                            |
|--------------------|----------------------------|
| 1. F               | A. Center                  |
| 2. $\overline{FE}$ | B. Chord                   |
| 3. $\overline{HG}$ | C. Diameter                |
| 4. $\overline{DB}$ | D. Radius                  |
| 5. C               | E. Point of Tangency       |
| 6. $\overline{BE}$ | F. Common External Tangent |
| 7. $\overline{DB}$ | G. Common Internal Tangent |
| 8. $\overline{AG}$ | H. Secant                  |



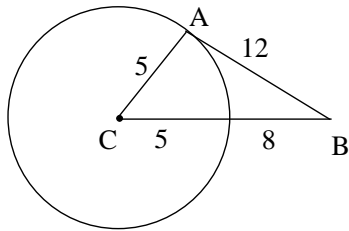
## Perpendicular Tangent Theorem



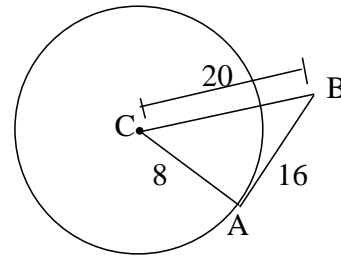
**Examples:**

Tell whether  $\overline{AB}$  is tangent to  $\odot C$ . Explain your reasoning

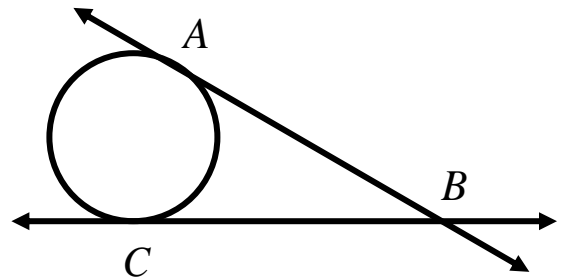
9.



10.

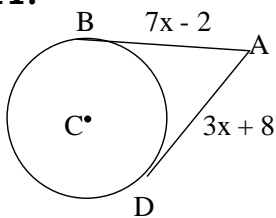


**Intersecting Tangent Theorem**

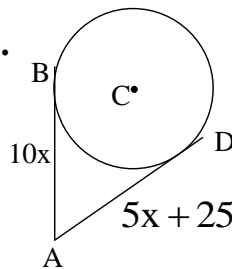


**Examples:**

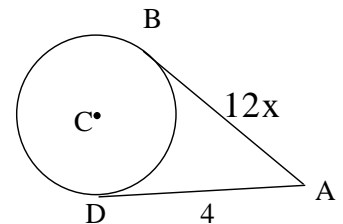
11.



12.

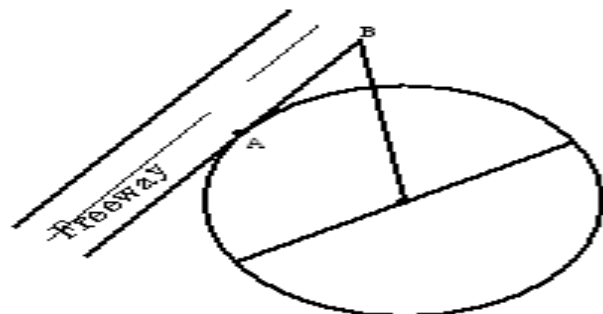


13.



14.

A freeway runs tangent to a circular lake. The distance from point B to the center of the lake is 100 miles. The distance from Point A to Point B on the freeway is 80 miles. What is the diameter of the lake?



## Day 6 Angle Relationships in Circles

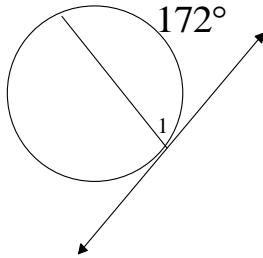
**Objectives:** **SWBAT** use angles formed by tangents and chords to solve problems.  
**SWBAT** use angles formed by lines that intersect a circle to solve problems.

### Intersecting a Tangent and a Chord

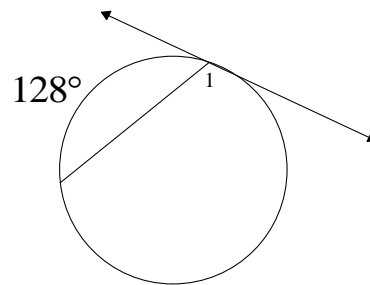
#### Examples:

Find the measure of  $\angle 1$ .

1.



2.

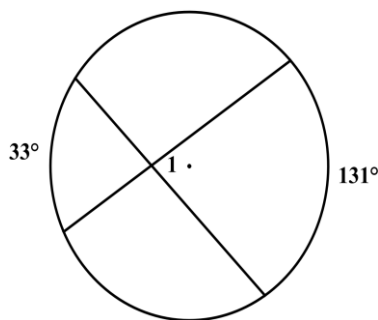


### Interior intersection of two Chords

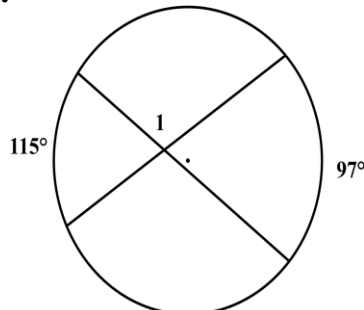
#### Examples:

Find the measure of  $\angle 1$ .

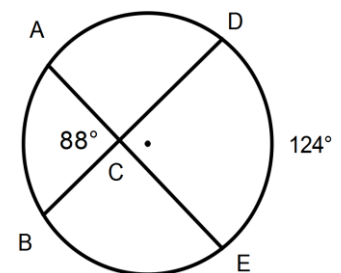
1.



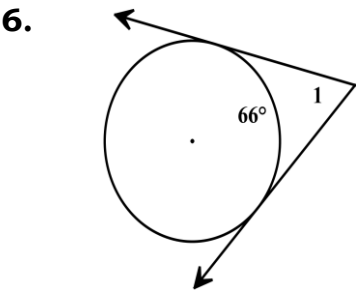
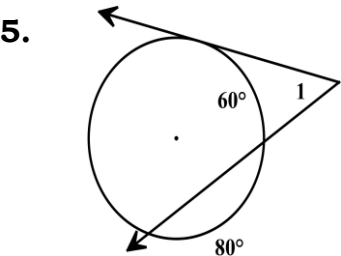
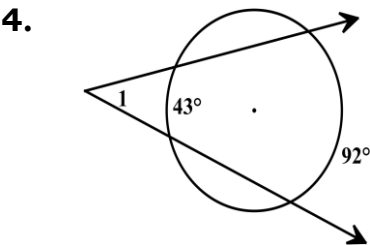
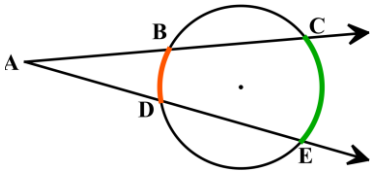
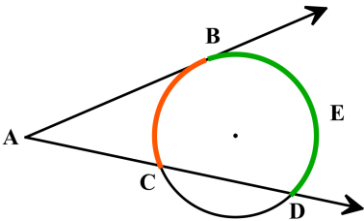
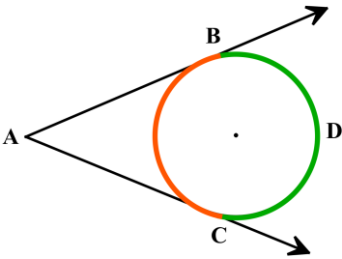
2.



3. Find  $m\widehat{AB}$



Exterior Intersection



Angle Location	Angle Name	Angle – Arc Relationship
Where is the vertex of my angle?		
CENTER		
ON		
INSIDE (Not Center)		
OUTSIDE		

## Day 7 Segment Lengths in Circles

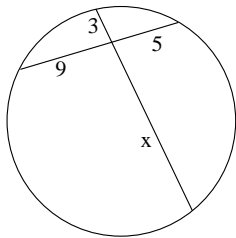
**Objectives:** **SWBAT** find the lengths of segments of chords.  
**SWBAT** find the lengths of segments of tangents and secants.

### Finding the Lengths of Intersecting Chords

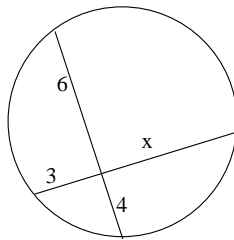
**Examples:**

Fill in the blanks. Then find the value of  $x$ .

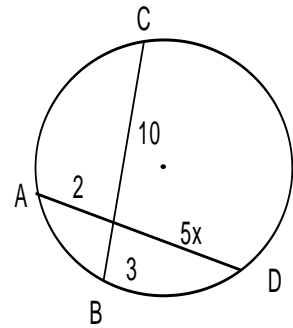
1.



2.

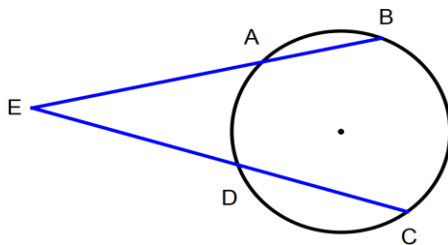


3.

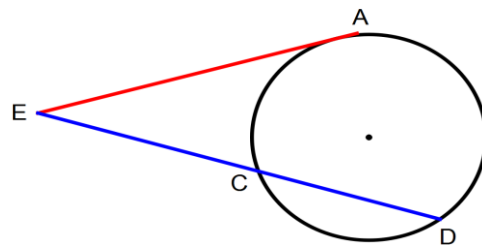


### Finding Lengths of Secants

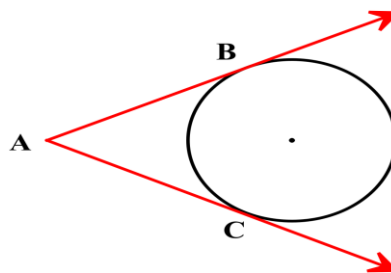
#### 1. Secant – Secant



#### 2. Tangent – Secant



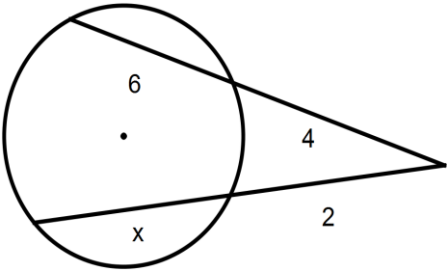
#### 3. Tangent – Tangent



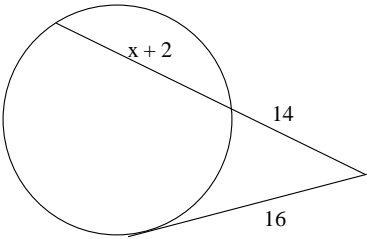
**Examples:**

Find the value of  $x$ .

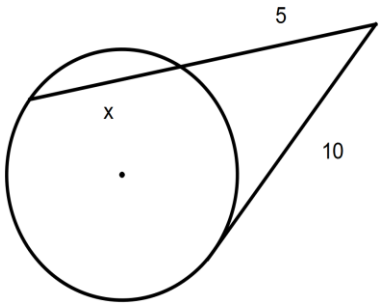
1.



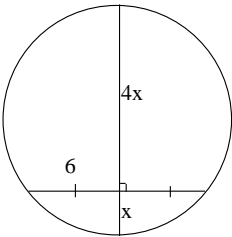
2.



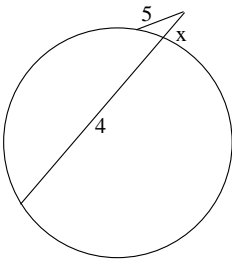
3.



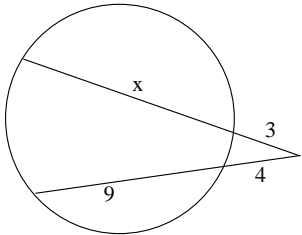
4.



5.



6.



**Review of Factoring**

**X Method**

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Secant - Secant	Tangent - Secant	Chord - Chord	Tangent - Tangent

## Day 8 Equations of Circles

**Objectives:** **SWBAT** write the equation of a circle.  
**SWBAT** use the equation of a circle and its graph to solve problems.

### Standard Equation of Circle

#### Examples:

Match the equation of a circle with its description.

- |                                 |                                 |
|---------------------------------|---------------------------------|
| 1. $(x + 2)^2 + (y - 3)^2 = 4$  | a. Center $(-3, 5)$ , radius 4  |
| 2. $(x - 2)^2 + (y - 5)^2 = 4$  | b. Center $(-2, -3)$ , radius 2 |
| 3. $(x + 3)^2 + (y - 5)^2 = 16$ | c. Center $(-2, 3)$ , radius 2  |
| 4. $(x + 2)^2 + (y + 3)^2 = 4$  | d. Center $(2, -5)$ , radius 2  |
| 5. $(x + 3)^2 + (y + 5)^2 = 16$ | e. Center $(-3, -5)$ , radius 4 |
| 6. $(x - 2)^2 + (y + 5)^2 = 4$  | f. Center $(2, 5)$ , radius 2   |

Give the center and the radius of each circle.

- |                                 |                                 |
|---------------------------------|---------------------------------|
| 7. $(x - 4)^2 + (y + 2)^2 = 25$ | 8. $(x + 2)^2 + (y + 4)^2 = 9$  |
| 9. $(x - 5)^2 + (y - 3)^2 = 16$ | 10. $(x + 6)^2 + (y - 4)^2 = 4$ |

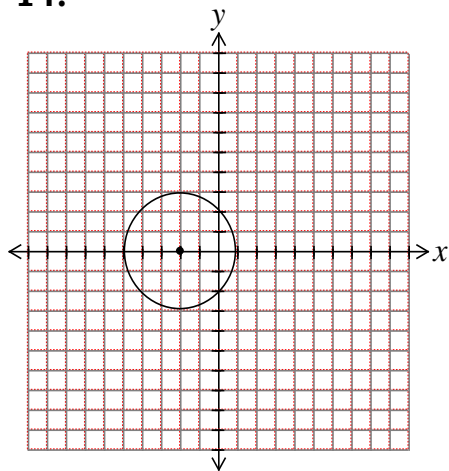
Write the standard equation of the circle with the given center and radius.

- |                                |                                 |
|--------------------------------|---------------------------------|
| 11. center $(0, 4)$ , radius 5 | 12. center $(-3, 6)$ , radius 7 |
| 13. center $(0, 0)$ , radius 1 |                                 |

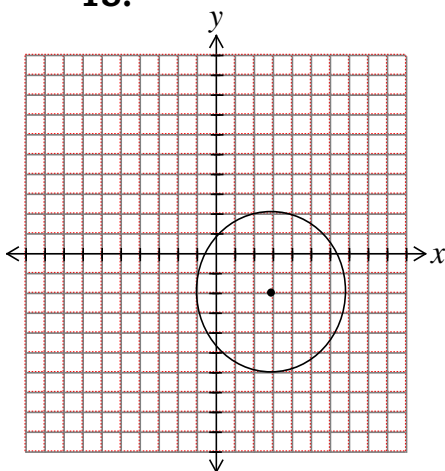
## Graphing Circles

Give the coordinates of the center, the radius and the equation of the circle.

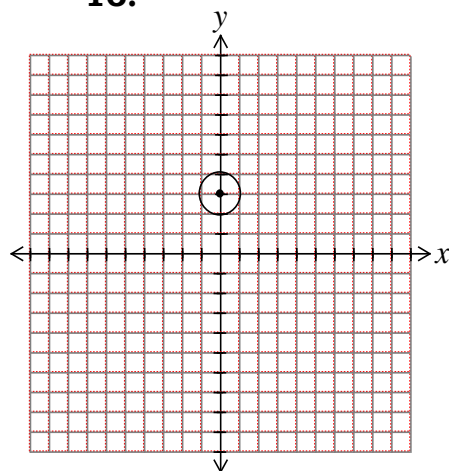
14.



15.

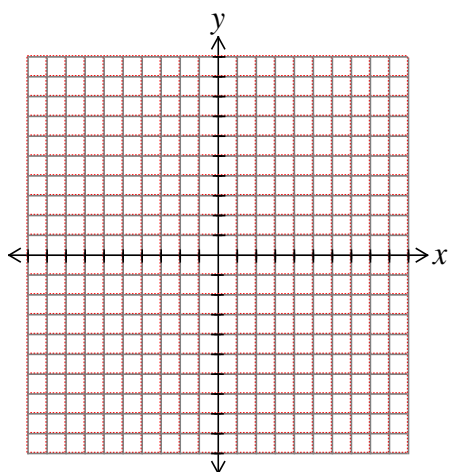


16.



Graph the circle given the equation.

4.  $(x + 4)^2 + (y - 2)^2 = 9$



5.  $(x - 5)^2 + y^2 = 4$

