

**TOPIC 14-1: INSCRIBED ANGLES**

TERM:	DEFINITION:	SKETCH:
<b>Inscribed Angle</b>	An angle whose vertex is on the circle, and whose sides contain chords of the circle.	

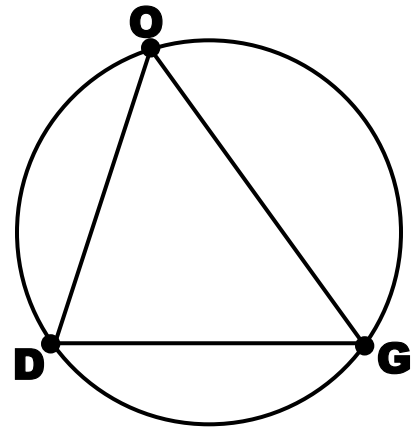
**EXAMPLE 1:** Name ALL the inscribed angles and their corresponding intercepted arcs below.

Inscribed angles/Intercepted Arc:

\_\_\_\_\_

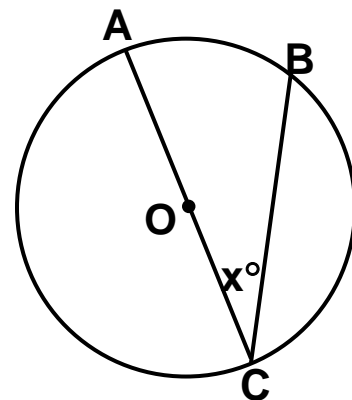
\_\_\_\_\_

\_\_\_\_\_



**THEOREM:** If an angle is inscribed in a circle, then the measure of the angle is half the measure of its intercepted arc.

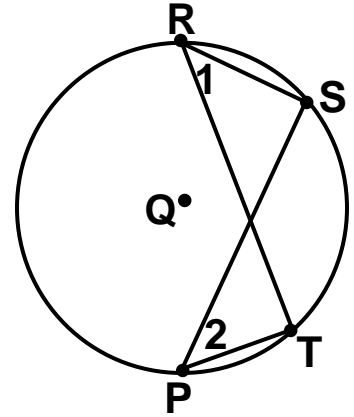
**EXAMPLE 2:** Given that  $m\widehat{BC} = 100^\circ$ , find the value of 'x' in circle O.



x = \_\_\_\_\_

**THEOREM:** If two inscribed angles of a circle or congruent circles intercept congruent arcs or the same arc, then the angles are congruent.

**EXAMPLE 3:** In circle Q,  $m\widehat{ST} = 68^\circ$ . Find the  $m\angle 1$  and  $m\angle 2$ .

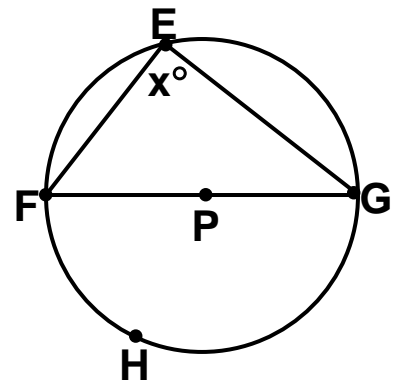


$$m\angle 1 = \underline{\hspace{2cm}}$$

$$m\angle 2 = \underline{\hspace{2cm}}$$

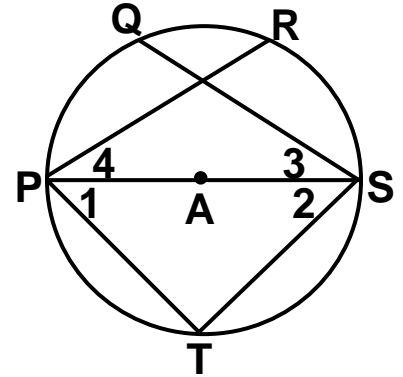
**THEOREM:** If an inscribed angle of a circle intercepts a semicircle, then the angle is a right angle.

**EXAMPLE 4:** Find the value of 'x'.



$$x = \underline{\hspace{2cm}}$$

**EXAMPLE 5:** In circle A,  $m\angle 1 = (6x + 11)^\circ$ ,  $m\angle 2 = (9x + 19)^\circ$ ,  $m\angle 3 = (4y - 25)^\circ$ ,  $m\angle 4 = (3y - 9)^\circ$ , and  $\widehat{PQ} \cong \widehat{RS}$ . Find  $m\angle 1$ ,  $m\angle 2$ ,  $m\angle 3$ , and  $m\angle 4$ .



$$m\angle 1 = \underline{\hspace{2cm}}$$

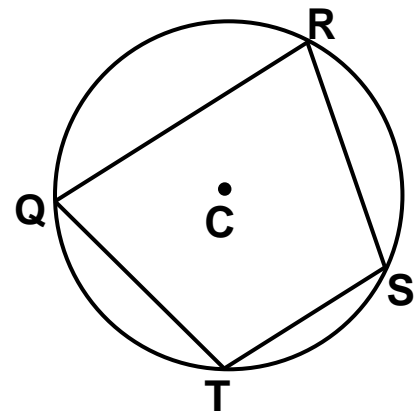
$$m\angle 2 = \underline{\hspace{2cm}}$$

$$m\angle 3 = \underline{\hspace{2cm}}$$

$$m\angle 4 = \underline{\hspace{2cm}}$$

**THEOREM:** If a quadrilateral is inscribed in a circle, then its opposite angles are supplementary.

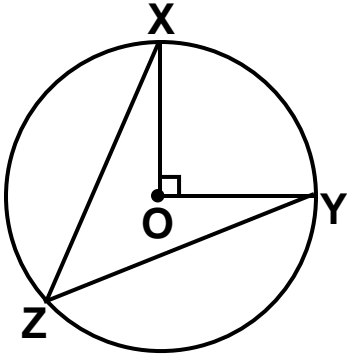
**EXAMPLE 6:** Quadrilateral QRST is inscribed in circle C. If  $m\angle T = 95^\circ$ ,  $m\angle S = 100^\circ$ , find  $m\angle Q$  and  $m\angle R$ .



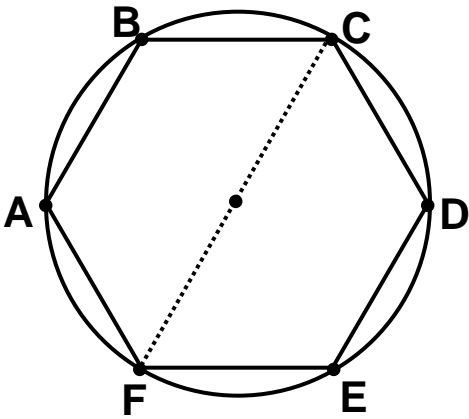
$$m\angle Q = \underline{\hspace{2cm}}$$

$$m\angle R = \underline{\hspace{2cm}}$$

**EXAMPLE 7:** Find the value of the inscribed angle.



**EXAMPLE 8:** Hexagon ABCDEF is inscribed in circle O. All sides of ABCDEF are congruent. Find the following.



a)  $m\widehat{CD} =$  \_\_\_\_\_

b)  $m\angle CFE =$  \_\_\_\_\_

c)  $m\angle BCD =$  \_\_\_\_\_