NOTES 10.4 – INSCRIBED ANGLES
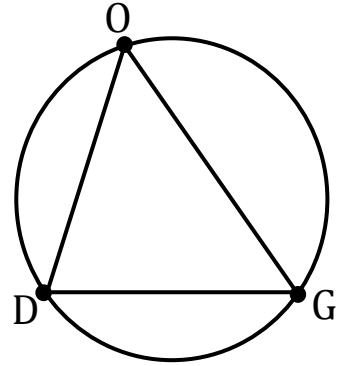
INSCRIBED ANGLE:
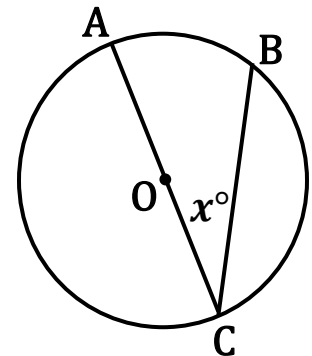

EXAMPLE 1: Name ALL of the inscribed angles and their corresponding intercepted arcs below.

Inscribed angles/Intercepted Arc:

_____

_____

_____

THEOREM: If an angle is inscribed in a circle, then the measure of the angle is **_half_** the measure of the **_intercepted arc_**.

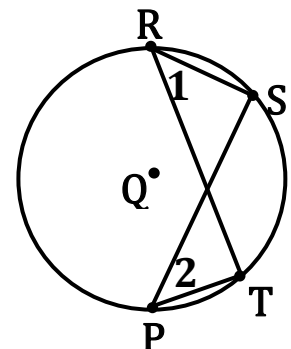**EXAMPLE 2: Given that $m\overset{\frown}{BC} = 100°$, find the value of '$x$' in $circle$ O.**

$x =$ _____

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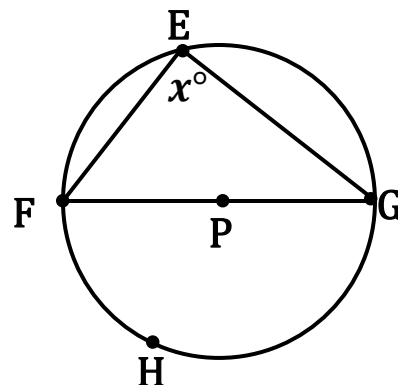

EXAMPLE 3: In $circle$ Q, $m\overset{\frown}{ST} = 68°$. Find the $m\angle 1$ and $m\angle 2$.

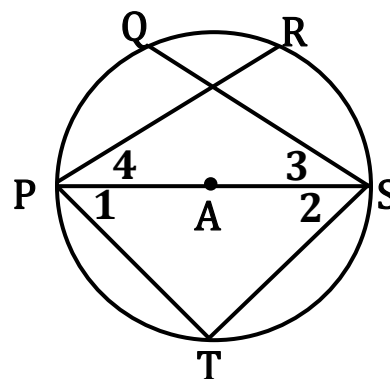$m\angle 1 =$ _____ $m\angle 2 =$ _____

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'.

$x =$ _____

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

$m\angle 1 =$ _____
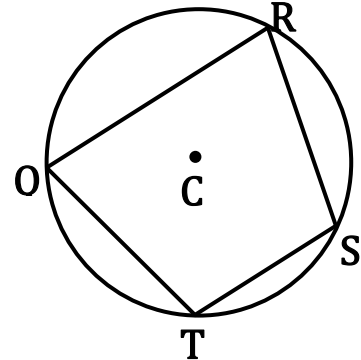
$m\angle 2 =$ _____

$m\angle 3 =$ _____

$m\angle 4 =$ _____

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THEOREM: If a quadrilateral is inscribed in a circle, then its opposite angles are supplementary.
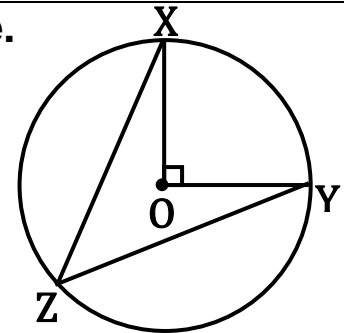
EXAMPLE 6: *Quadrilateral* **QRST is inscribed in** *circle* **C. If** $m\angle T = 95°$, $m\angle S = 100°$, $\overset{\frown}{TR} = 160°$, **and** $\overset{\frown}{QS} = 170°$, **find** $m\angle Q$ **and** $m\angle R.$

$m\angle Q = $ _____

$m\angle R = $ _____
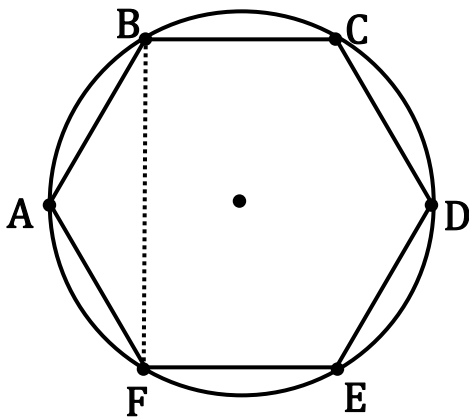
EXAMPLE 7: Find the value of the inscribed angle.

EXAMPLE 8: Find the value of 'x'.

120°

$(3x - 3)°$

$x = $ _____
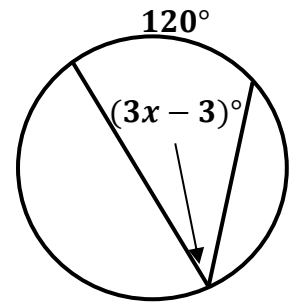
EXAMPLE 9: *Hexagon* **ABCDEF is inscribed in** *circle* **O. All sides of ABCDEF are congruent. Find the following.**

a) $m\overset{\frown}{CD} = $ _____

b) $m\angle BFE = $ _____

c) $m\angle BCD = $ _____

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