Math 3 8.3 Inscribed Angles Unit 8

*SWBAT apply the rules and theorems of inscribed angles to solve for unknowns.*

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| **Major Arc:** | **Minor Arc:** | **Semicircle:** |
| An arc of a circle measuring more than or equal to 180˚ | An arc of a circle measuring less than 180˚ | An arc of a circle measuring 180 ˚ |

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| **Central Angle:** | A central angle is an angle formed by two intersecting radii such that its vertex is at the center of the circle.  |  |
| **Central Angle Theorem:** | *In a circle, or congruent circles, congruent central angles have congruent arcs.* |

**Example 1:** Identify the following in ☉P at the right. For parts d-f, find the measure of each arc in ☉P.

1. A semicircle
2. A minor arc
3. A major arc

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| **Inscribed Angle:** | An inscribed angle is an angle with its vertex "on" the circle, formed by two intersecting chords. |  |
| **Inscribed Angle Theorem:** | *The measure of an inscribed angle is half the measure of its intercepted arc.* |

**Example 2**: What are the values of a and b? **You Try!** What are the m, m, m, and m?

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| **Corollary 1:** | **Corollary 2:** | **Corollary 3:** |
| Two inscribed angles that intercept the same arc are congruent. | An angle inscribed in a semicircle is a right angle. | The opposite angles of a quadrilateral inscribed in a circle are supplementary. |

**Example 3:** What is the measure of each numbered angle?

1. 
2. ****

**You Try!** Find the measure of each numbered angle in the diagram to the right.

1.
2.

|  |  |  |
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| **Tangent Chord Angle:** | An angle formed by an intersecting tangent and chord has its vertex "on" the circle. |   |
| **Tangent Chord Angle Theorem:**  | *The tangent chord angle is half the measure of the intercepted arc.***Tangent Chord Angle = ½ (Intercepted Arc)** |

**Example 4:** In the diagram, is tangent to the circle at Q. If , what is the ?

**You Try!** In the diagram, is tangent to What are the values of x and y?

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**Practice:** Find the value of each variable. For each circle, the dot represents the center.

1. 
2. 
3. ****





1.