HN Math 3 Notes **Inscribed Angles** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit 6 Part II, Day 3 A*pply the rules and theorems of inscribed angles to solve for unknowns.*

1. **Basic Information/Central Angles**

****

|  |  |  |
| --- | --- | --- |
| **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 ˚ |

|  |  |  |
| --- | --- | --- |
| **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

**Example 2:** Find the length of



**Example 3:**



1. **Inscribed Angles**

1

2

1. Looking at ∠1 and ∠2, what conjecture would you

make about the size of the angles with respect to

each other? (Circle one)

**m∠1 > m∠2 m∠1 < m∠2 m∠1 = m∠2**

1. Use patty paper to trace ∠1 OR ∠2. Investigate to

determine if your conjecture was correct.

1. After tracing and investigating, can you make a more

specific conjecture about the relationship between

m∠1 and m∠2?

1. If m = 70, find m∠1 and m∠2.

|  |  |  |
| --- | --- | --- |
| **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 1**: What are the values of a and b? **You Try!** What are the m, m, m, and m?

****

|  |  |  |
| --- | --- | --- |
| **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 2:** What is the measure of each numbered angle?

1. 
2. ****

**Example 3:** Find the measure of each numbered angle in the diagram to the right.

1.
2.

|  |  |  |
| --- | --- | --- |
| **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 ?

**Example 5:** In the diagram, is tangent to What are the values of x and y?

****

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

1. 
2. 
3. ****





1.
2. Use the diagram at the right to complete the following:
3. Name an inscribed angle.
4. Name an arc intercepted by ∠BAC.
5. If m∠BPC = 42, find m∠BAC.









c.



1. and are diameters of ʘA. Find m∠BRT and m∠TRS.

***RULE: Two chords are parallel if and only if the intercepted arcs are congruent.***

10. In ʘZ, , m = 94, m∠AZB = 104. Find: 11. In ʘA, ≅ and m∠1 = 38 and m = 28. Find:

m = \_\_\_\_\_\_

m∠BAC = \_\_\_\_\_\_ m∠T = \_\_\_\_\_

m∠ADB = \_\_\_\_\_\_ m∠2 = \_\_\_\_\_

m = \_\_\_\_\_\_ m∠3 = \_\_\_\_\_

m = \_\_\_\_\_\_ m∠4 = \_\_\_\_\_

m∠DAC = \_\_\_\_\_\_ m = \_\_\_\_\_

m∠AEB = \_\_\_\_\_\_