# Investigation 1: Exploring Inscribe Angles

1. Draw central angle and measure it with a protractor.   
     
   What is the measure of the intercepted arc ?
2. Now draw 4 inscribed angles with endpoints *A* and *B* , and vertices on the major arc .  
     
   Measure these inscribed angles with a protractor.  
     
   What are the measurements of   
   these inscribed angles?  
     
     
     
     
     
     
     
     
   **Inscribed Angle Theorem:  
   The measure of an inscribed angle  
   is \_\_\_\_\_\_\_\_\_\_ the measure of   
   the intercepted arc.**
3. **Prove it!**  
   There are three possible cases. Let’s prove the inscribed angle theorem for one of these cases

**Given:** Circle O with inscribed and diameter .  
**Prove:**

# Inscribed Angle Corollaries:

* Two inscribed angles that intercept the same arc are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
  
* An angle inscribed in a semicircle is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
    
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* The opposite angles of a quadrilateral inscribed in a circle are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



# Investigation 2: Chord-Tangent Angles

1. What is the slope of segment ?
2. Find the equation of a line that is perpendicular to that goes through point A.  
     
   Draw in this perpendicular line (without using a protractor). What kind of line is this in relation to the circle?
3. Draw in chord . Measure the acute angle made by the chord and this tangent line.
4. Measure
5. Find
6. How do the measurement s in (3) and (5) relate?

**Theorem: The measure of an angle formed by a tangent and a chord is  
  
 \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the measure of the intercepted arc.**