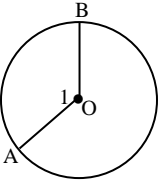
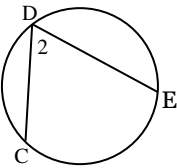
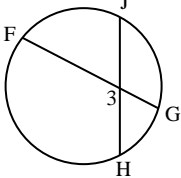
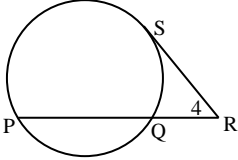


Unit 9 Test: Equations and Essential Information

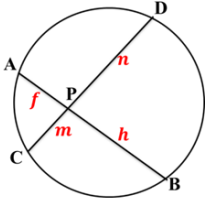
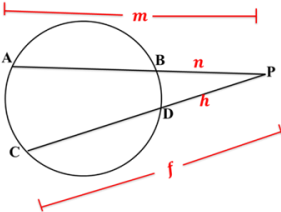
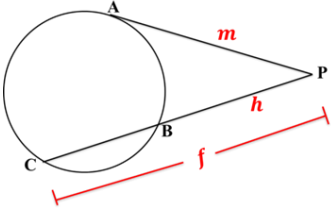
Vocabulary: Remember these terms, as well as how to spot them on a diagram.

Circle	Center	Radius	Chord
Diameter	Secant	Tangent	Central Angle
Inscribed Angle	Intercepted Arc	Interior Angle	Exterior Angle
Arc	Minor Arc	Major Arc	Semicircle

Arc and Angle Measures – By Types

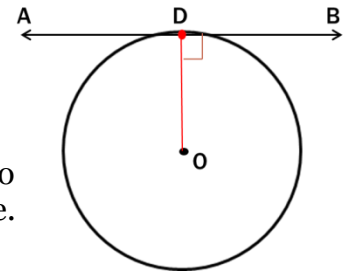
Central	Inscribed	Inside	Outside
			
<u>Location of the vertex:</u> At the center of the circle	<u>Location of the vertex:</u> On the circle	<u>Location of the vertex:</u> Where the chords intersect	<u>Location of the vertex:</u> At the external point
Rule: $m \angle 1 = m \widehat{AB}$	Rule: $m \angle 2 = \frac{1}{2} \times m \widehat{CE}$	Rule: $m \angle 3 = \frac{1}{2} (m \widehat{FJ} + m \widehat{HG})$	Rule: $m \angle 4 = \frac{1}{2} (m \widehat{PS} - m \widehat{QS})$

Segments Lengths – By Types

Chords	Two Secants	Secant and Tangent
		
Rule: $f \times h = m \times n$	Rule: $f \times h = m \times n$	Rule: $f \times h = m^2$

Theorems and Corollaries Related to Tangents

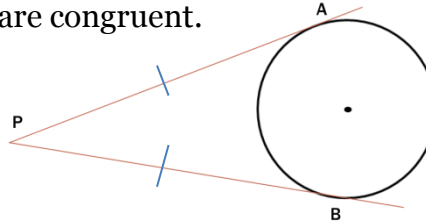
Theorem 9-1: If a line is tangent to a circle, then the line is perpendicular to the radius drawn to the point of tangency.



Theorem 9-2: If a line in the plane of a circle is perpendicular to a radius at its other endpoint, then the line is tangent to the circle.

Corollary: Tangents to a circle from a point are congruent.

$$\overline{PA} \cong \overline{PB}$$



Arcs and Chords

Theorem 9-4: In the same circle, or in congruent circles:

- 1.) Congruent arcs have congruent chords.
- 2.) Congruent chords have congruent arcs.

Theorem 9-5: A diameter that is perpendicular to a chord bisects the chord and its arc.

Theorem 9-6: In the same circle, or in congruent circles:

- 1.) Chords equally distant from the center are congruent;
- 2.) Congruent chords are equally distant from the center.

Theorems and Corollaries for Inscribed Angles

Theorem 9-8	Corollary 1	Corollary 2	Corollary 3
The measure of an angle formed by a chord and a tangent is equal to half the measure of its intercepted arc.	If two inscribed angles intercept the same arc, then the angles are congruent.	An angle inscribed in a semicircle is a right angle.	If a quadrilateral is inscribed in a circle, then its opposite angles are supplementary.
Rule: $m \angle 2 = \frac{1}{2} \times m \widehat{AT}$	Rule: $\angle 1 \cong \angle 2$	Rule: $m \angle X = 90^\circ$	Rule: $m \angle H + m \angle F = 180^\circ$ $m \angle E + m \angle G = 180^\circ$