

Chapter 12

- A tangent line is a line that intersects the circle in only one point.
- If a line is tangent to a circle, then the line is perpendicular to the radius drawn to the point of tangency.
- congruent central angles have congruent chords.
- congruent chords have congruent arcs.
- congruent arcs have congruent central angles.
- chords equidistant from the center of a circle are congruent.
- the diameter that is perpendicular to a chord bisects the chord and its arcs.
- the two segments tangent to a circle, from a point outside the circle, are congruent.



- the perpendicular bisector of a chord contains the center of the circle.
- the measure of an inscribed angle is half the measure of its intercepted arc.

$AB=CB$



$m\angle B = \frac{1}{2}m\widehat{AC}$

- Two inscribed angles that intercept the same arc are congruent.
- An angle inscribed in a semicircle is a right angle.
- opposite angles of a quadrilateral inscribed in circle are supplementary.
- measure of an angle formed by a tangent and a chord is half the measure of the intercepted arc.



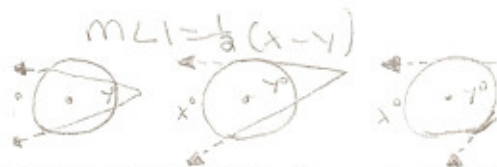
$m\angle C = \frac{1}{2}m\widehat{B}$

- the measure of an angle formed by 2 lines that (1) intersect inside a circle is half the sum of the measures of the intercepted arcs.



$m\angle I = \frac{1}{2}(x+y)$

- (2) intersect outside a circle is half the difference of the measures of the intercepted arcs.



$m\angle I = \frac{1}{2}(x-y)$

- for a given point and circle, the product of the length of the two segments from the point to the circle is congruent to any line through the point and circle.



$a \cdot b = c \cdot d$



$(w+x)w = (y+z)y$



$(y+z)y = t^2$

- an equations of a circle with center  $(h,k)$  and radius,  $r$ , is  $(x - h)^2 + (y - k)^2 = r^2$