

Theorem 9.1

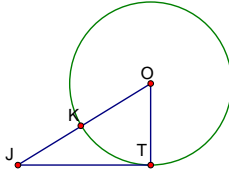
A tangent is _____ to the _____ drawn to the point of tangency.

Draw this relationship to the left.

Use this theorem to complete:

1.) If $OT = 5$, $JO = 13$, then $JT = \underline{\hspace{2cm}}$

2.) If $OT = 5$, $JT = 10$, $JO = \underline{\hspace{2cm}}$



JT is tangent to the circle at T

3.) If $m\angle J = 30^\circ$ and $JO = 12$,
 $JT = \underline{\hspace{2cm}}$

4.) If $JK = 18$ and $KO = 7$, then $JT = \underline{\hspace{2cm}}$

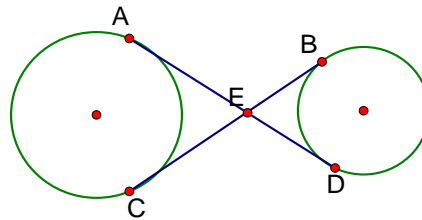
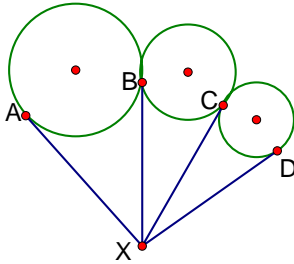
Corollary

Tangents to a circle from a common point are _____.

Use this corollary to complete:

5.) $AX = 5$, $DX = \underline{\hspace{2cm}}$

6.) $AE = 2.8$, $BE = 3.1$, $AD = \underline{\hspace{2cm}}$, $BC = \underline{\hspace{2cm}}$



7.) In the diagram to the right, $m\angle C = 20$.

Complete:

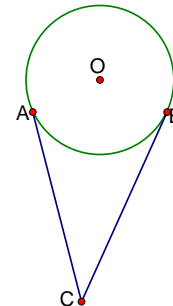
(a) $m\angle CBA = \underline{\hspace{2cm}}$, $m\angle CAB = \underline{\hspace{2cm}}$

(b) $m\angle OAB = \underline{\hspace{2cm}}$,

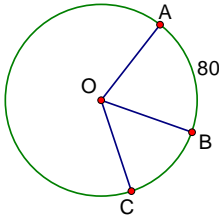
$m\angle OBA = \underline{\hspace{2cm}}$

(Hint: draw $\triangle CAB$. What do you know about \overline{AC} and \overline{BC} ?)

(Hint: draw $\triangle AOB$. What do you know about \overline{AO} and \overline{BO} ?)



A **central angle** of a circle is an angle with its vertex at the _____ of the circle. Example: _____



An **arc** is a section of a circle. Examples: _____, _____

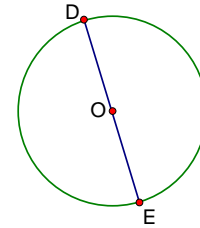
We measure arcs in _____. Example: _____

A **minor arc** is a section of a circle that is less than _____. Example: _____

A **major arc** is a section of a circle that is greater than _____. Example: _____

The entire arc of a circle measures _____

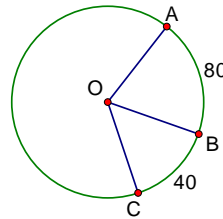
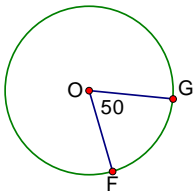
A **semicircle** is _____ a circle (formed by a _____) and measures _____. Examples: _____, _____



The measure of an arc is equal to the measure of its _____ angle.

Arc Addition Postulate

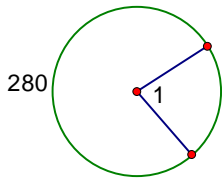
The sum of the measures of two adjacent arcs is equal to the measurement of the larger arc that they form.



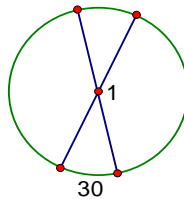
$$m\widehat{AB} + m\widehat{BC} = m\widehat{AC}$$

Find $m\angle 1$:

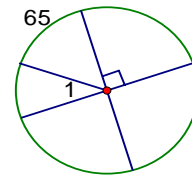
8.)



9.)

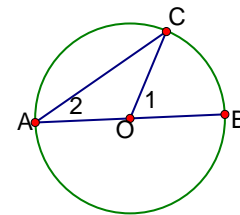


10.)



11.) Complete:

	(a)	(b)	(c)	(d)	(e)
$m\widehat{CB}$	40	80			
$m\angle 1$			46		
$m\angle 2$				22	y



(a)

(b)

(c)

(d)

(e)

Compass Practice: (When using your compass, you must keep the **point still**.)

12.) Use your compass to make a circle with a small radius at center O.

13.) Use your compass to make a circle with a larger radius at center P.

14.) Use your compass to draw arcs of a circle.

Construction #1: Given a segment, construct a segment congruent to the given segment (pg. 375)

Steps:

1.) Using your straightedge, draw a segment longer than \overline{AB} . Pick a point on this segment and label it X. [Our goal is to “measure” and mark (or cut and paste) \overline{AB} onto our new segment.]

2.) Set the width (or radius) of your compass to the length of \overline{AB} . This means place the point of your compass on A, and then stretch your compass so that the pencil is on point B. [You have now “stored” this length into your compass.]

3.) Without changing the opening of your compass, place its point on X. Use the compass to mark your segment with an arc. Label this intersection as Y.

4.) Check with a ruler that $\overline{AB} \cong \overline{XY}$



Construct a segment congruent to each given segment:

