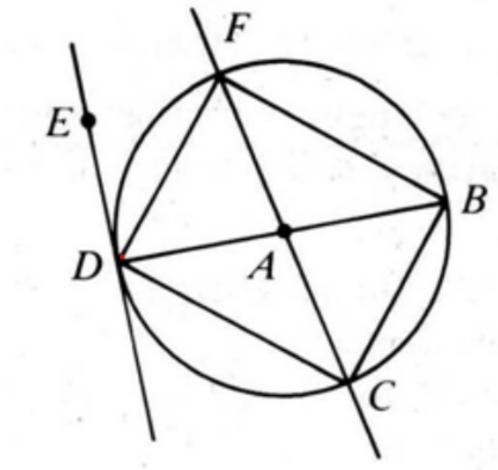
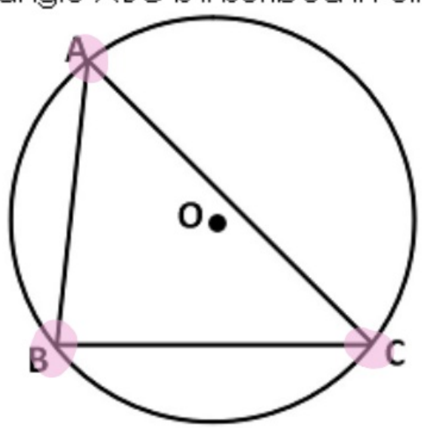
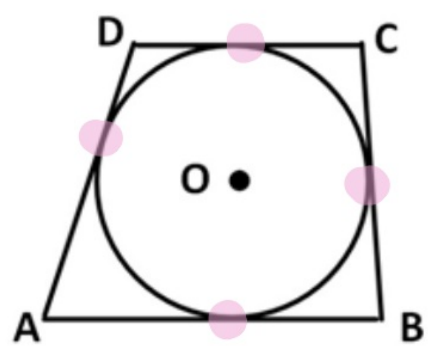
Chapter 9 Summary

Vocabulary:

<table>
<tr><td rowspan="9">
</td><td>The center</td></tr>
<tr><td>Two diameters $\overline{FC}$</td></tr>
<tr><td>A point of tangency</td></tr>
<tr><td>Four radii</td></tr>
<tr><td>A tangent $\overleftrightarrow{FD}$</td></tr>
<tr><td>A secant $\overleftrightarrow{FC}$</td></tr>
<tr><td>Six chords $\overline{FD}$</td></tr>
<tr><td>Why is $\overline{AC}$ not a chord of circle A?</td></tr>
<tr><td>Why is $\overleftrightarrow{BD}$ not a chord of circle A?</td></tr>
<tr><td>Inscribed
Triangle ABC is inscribed in circle O.

</td><td>Circumscribed:
Quadrilateral ABCD is circumscribed about circle O.

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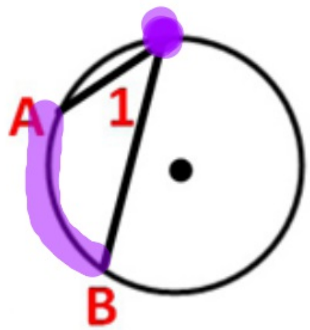
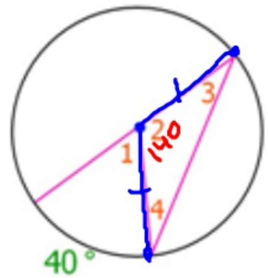
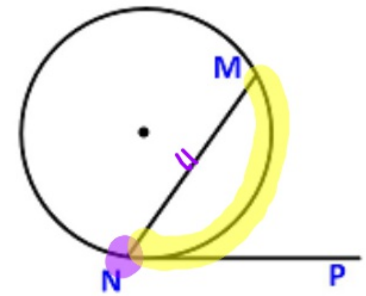
Angles

Inscribed: ½ intercepted arc	Central angle = intercepted arc	Angle MNP is half intercepted arc MN
		

$\angle 1 = \frac{1}{2}\overset{\frown}{AB}$

$2 \cdot \angle 1 = \overset{\frown}{AB}$

$\angle 1 = 40^\circ$

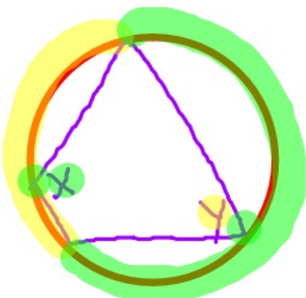
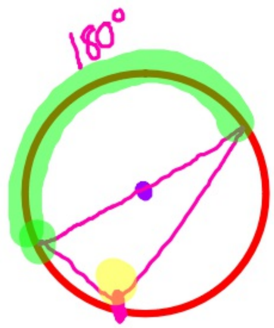
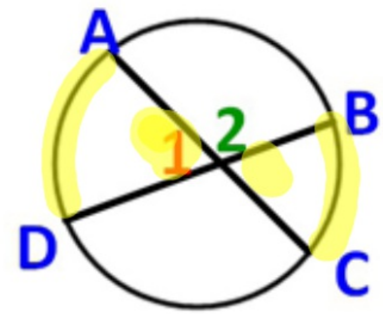
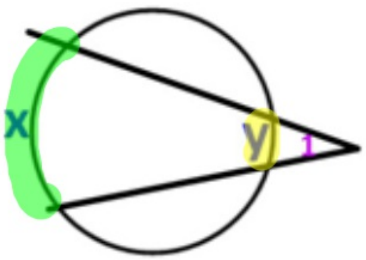
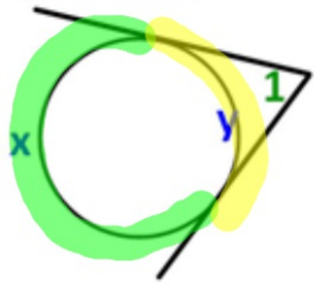
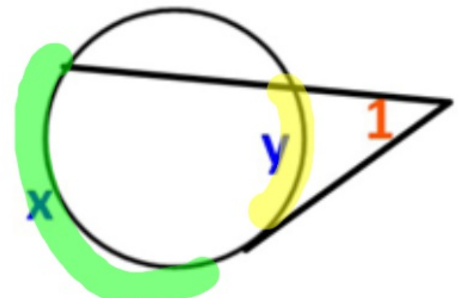
$\angle 2 = 140^\circ$

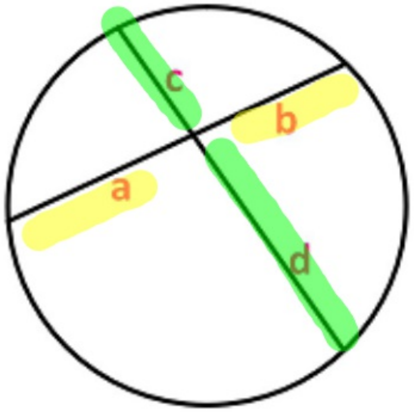
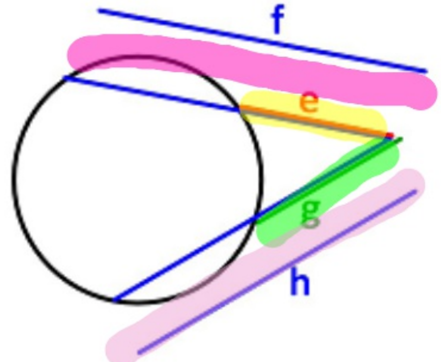
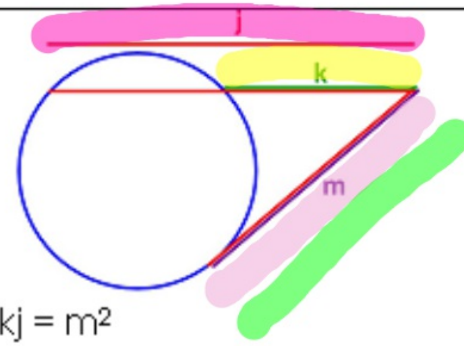
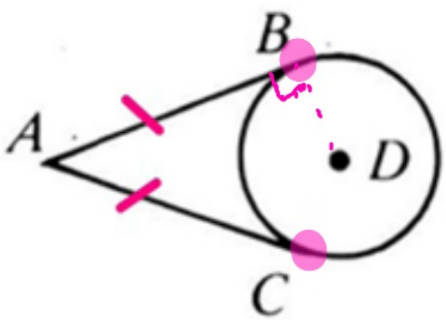
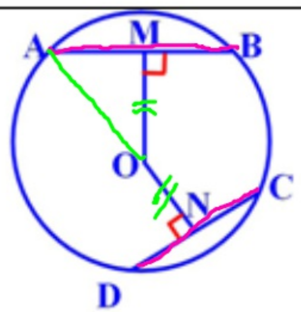
$\angle 3 = \angle 4 = 20^\circ$

$\angle MNP = \frac{1}{2}\overset{\frown}{MN}$

or

$2 \cdot (\angle MNP) = \overset{\frown}{MN}$

Quadrilateral: opposite angles of a quadrilateral inscribed in a circle are supplementary.  $x + y = 180$ $\overset{\frown}{\angle x} + \overset{\frown}{\angle y} = 360$	Diameter: If one side of a triangle is a diameter of a circle, it is a right triangle  $\frown = 180°$ so $\measuredangle = 90°$	$m\measuredangle 1 = \frac{1}{2}\left(\widehat{AD} + \widehat{BC}\right)$ 
 $m\measuredangle 1 = \frac{1}{2}(x - y)$	 $m\measuredangle 1 = \frac{1}{2}(x - y)$	 $m\measuredangle 1 = \frac{1}{2}(x - y)$

 ab = cd	 ef = gh	 kj = m^2
	If segments AB and AC are tangent to circle D then AB = AC	remember: radius to point of tangency makes a ∟ 90°
	If AB = DC then OM = ON	If OM = ON then AB = DC

Equation of a Circle

$$(x-a)^2+(y-b)^2=r^2$$

center is at (a,b)

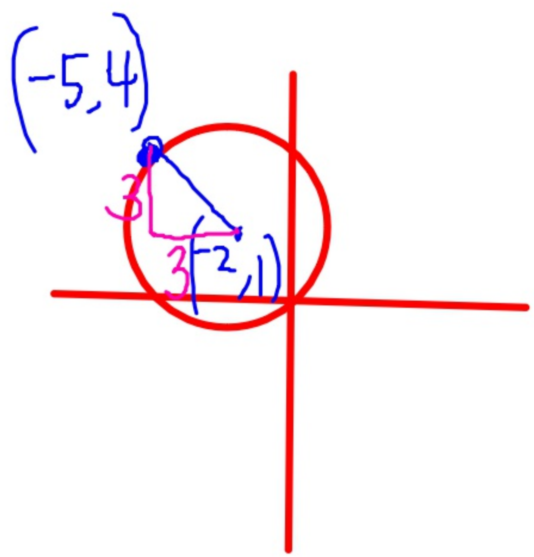
radius

How to find the Radius

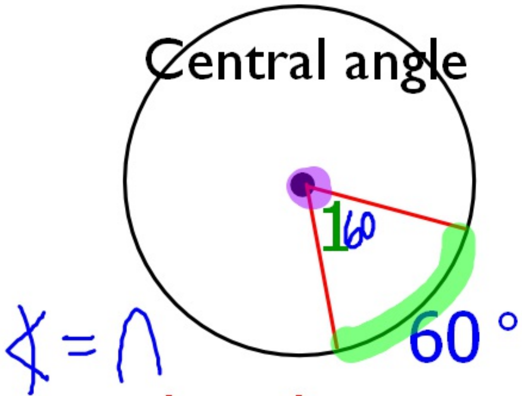
-Use the distance formula $d=\sqrt{(x-x)^2+(y-y)^2}$

or

-Make a right triangle and use $a^2+b^2=c^2$

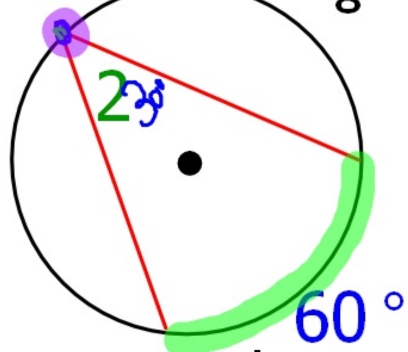


Central angle



angle = the arc

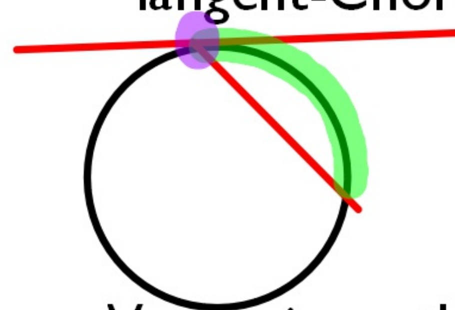
Inscribed angle



Vertex is on the circle

angle = half the arc

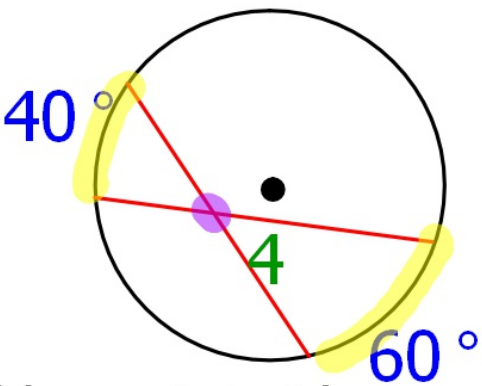
Tangent-Chord angle



Vertex is on the circle

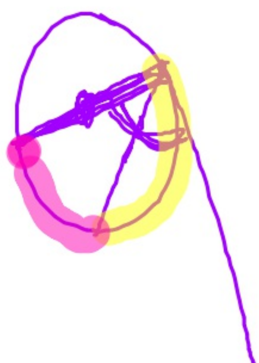
angle = half the arc

Chord-Chord

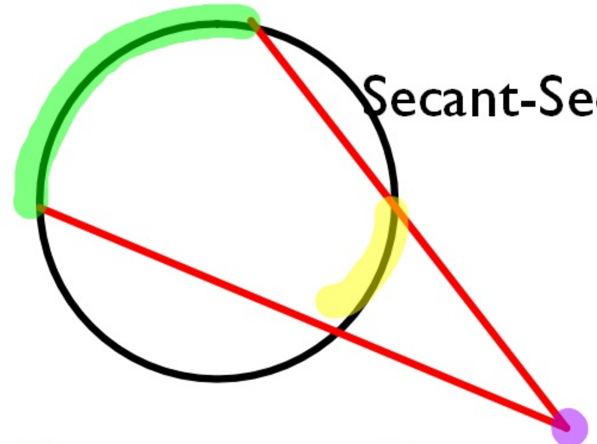


Vertex is inside

add and divide by 2



Secant-Secant



Vertex is outside

subtract and divide by 2

Tangent-Tangent