8.1

Name (print first and last) _____ **Per**_____ **Date:** 3/24 due 3/25

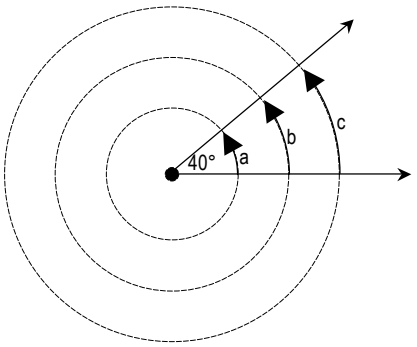
8.1 Circles: Arcs and Central Angles **Geometry Regents 2013-2014 Ms. Lomac**

SLO: I can use definitions & theorems about points, lines, and planes to determine relationships between them.

(1) ☐ On page 1 of your circle notes, match the term and description with the diagram.

Arc	**Center**	**Circle**	**Central Angle**	**Diameter**
Intercepted Arc	**Major Arc**	**Minor Arc**	**Radius**	

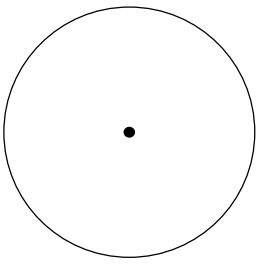
(2) ☐ An angle measure is determined by the number of degrees of _____ between the sides of the angle. The measure of the angle drawn at right is _____. Arcs a, b, and c are drawn to show the rotation of the angle. The measure of arc a is _____, the measure of arc b is _____, and the measure of arc c is _____ because all three arcs show the rotation of the angle which is _____.



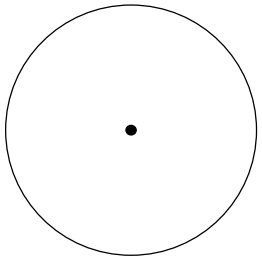
The measure of an **arc** is _____ the measure of the **central angle** that **intercepts** it .

(3) ☐ You may want to use an internet tool to view the relationship between a **central angle** and the **arc it intercepts** to see that it is what you described in #2 above. Complete a sketch for each example below. Be sure to label the arc measure and the central angle measure.

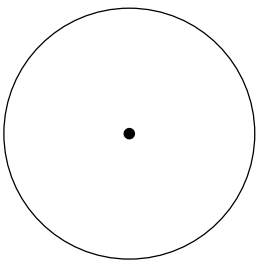
☐ (a) A central angle measures 80°. Therefore, the intercepted arc measures _____



☐ (b) A central angle measures 222°. Therefore, the intercepted arc measures _____



☐ (c) An arc measures 68°. Therefore, the subtended central angle measures _____



☐ (d) Write a sentence that summarizes the relationship between the measure of a **central angle** and the measure of the **arc it intercepts**. _____

_____

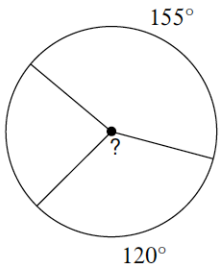
☐ BEFORE YOU GO ON:

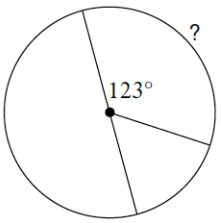
The sum of all non-overlapping central angles in a circle is ____ so the measure of the sum all non-overlapping arcs is ___.

Vertical angles are _____. And finally, angles or arcs with the same marks are _____.

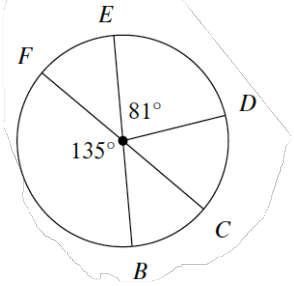
8.1

(4) Apply vocabulary and the relationship you illustrated number (3) of this lesson. Finish for Homework & check. Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

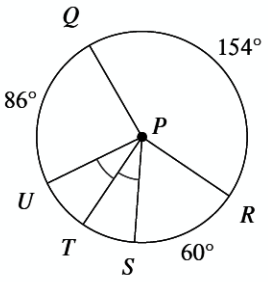




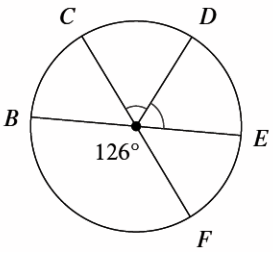
$\overset{\frown}{mCFD}$



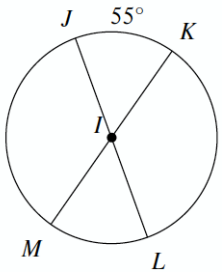
$m\angle SPQ$



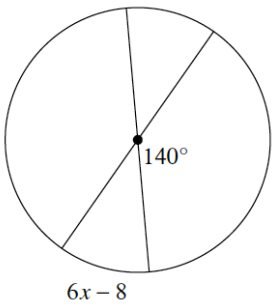
$\overset{\frown}{mEFC}$

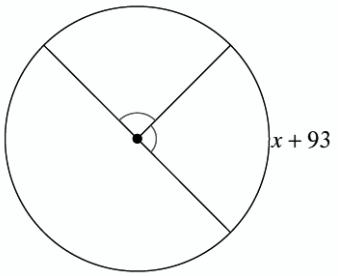


$m\angle MIJ$



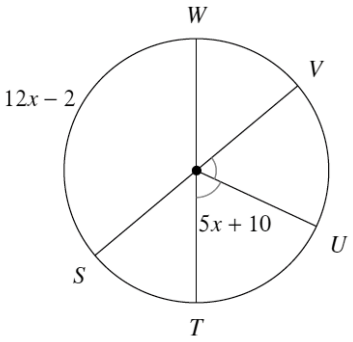
Solve for x. Assume that lines which appear to be diameters are actual diameters.



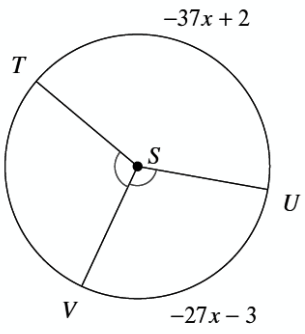


Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

$\overset{\frown}{mWV}$



$m\angle VST$



8 CIRCLES NOTES PAGE (1)

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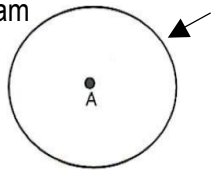	
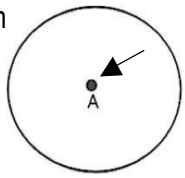	
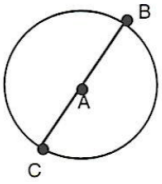	
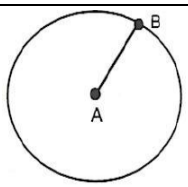	
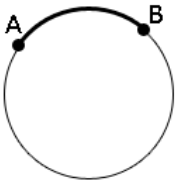	
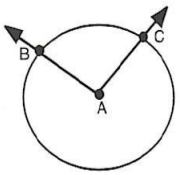	
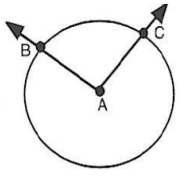	
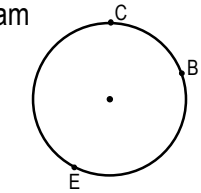	
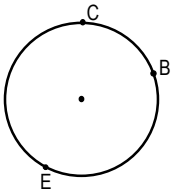	

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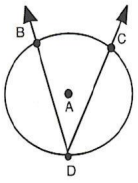	
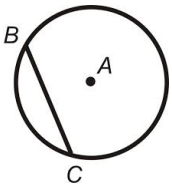	
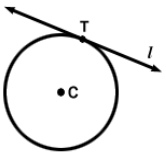	
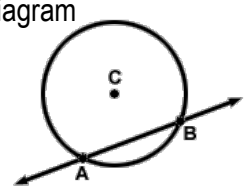	
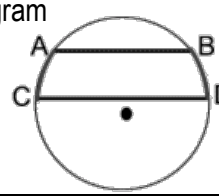	
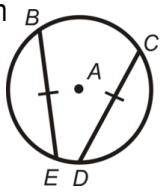	
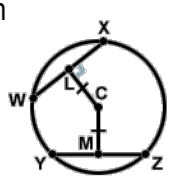	
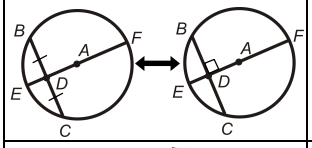	
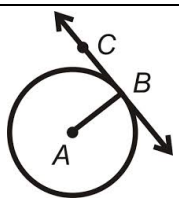	

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8 CIRCLES NOTES PAGE (2)

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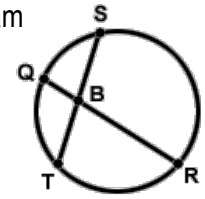	
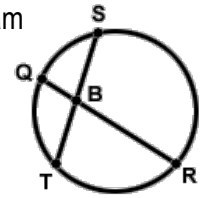	
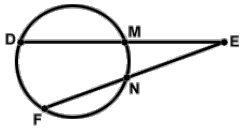	
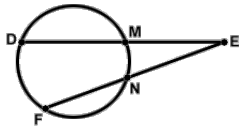	
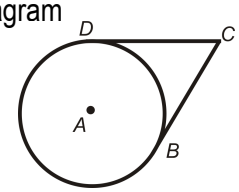	
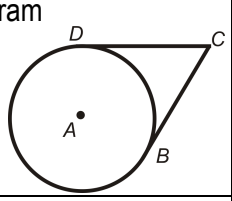	
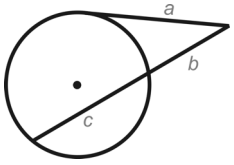	
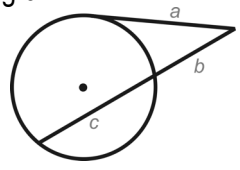	
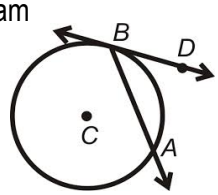	

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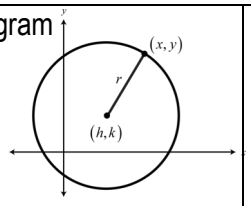	
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Terms to cut, sort, and tape onto notes sheet

Term: **Diameter** $\left(\overline{BC}\right)$ Description: A chord that passes through the center of a circle, OR, a segment drawn through the center of a circle with endpoints on the circle	Term: **Diameter** $\left(\overline{BC}\right)$ Description: A chord that passes through the center of a circle, OR, a segment drawn through the center of a circle with endpoints on the circle	Term: **Diameter** $\left(\overline{BC}\right)$ Description: A chord that passes through the center of a circle, OR, a segment drawn through the center of a circle with endpoints on the circle
Term: **Circle** Description: The set of all points in a plane equidistant from a center point	Term: **Circle** Description: The set of all points in a plane equidistant from a center point	Term: **Circle** Description: The set of all points in a plane equidistant from a center point
Term: **Center** Description: A point equidistant from every point on a circle	Term: **Center** Description: A point equidistant from every point on a circle	Term: **Center** Description: A point equidistant from every point on a circle
Term: **Radius** $\left(\overline{AB}\right)$ Description: The distance between the center of a circle and each point on the circle often shown with a line segment connecting the two points	Term: **Radius** $\left(\overline{AB}\right)$ Description: The distance between the center of a circle and each point on the circle often shown with a line segment connecting the two points	Term: **Radius** $\left(\overline{AB}\right)$ Description: The distance between the center of a circle and each point on the circle often shown with a line segment connecting the two points
Term: **Arc ($\overset{\frown}{AB}$)** Description: a portion or part of the circumference of a circle	Term: **Arc ($\overset{\frown}{AB}$)** Description: a portion or part of the circumference of a circle	Term: **Arc ($\overset{\frown}{AB}$)** Description: a portion or part of the circumference of a circle
Term: **Major Arc ($\overset{\frown}{BEC}$)** Description: An arc that is greater than 180°	Term: **Major Arc ($\overset{\frown}{BEC}$)** Description: An arc that is greater than 180°	Term: **Major Arc ($\overset{\frown}{BEC}$)** Description: An arc that is greater than 180°
Term: **Minor Arc ($\overset{\frown}{BC}$)** Description: An arc that is less than 180°	Term: **Minor Arc ($\overset{\frown}{BC}$)** Description: An arc that is less than 180°	Term: **Minor Arc ($\overset{\frown}{BC}$)** Description: An arc that is less than 180°
Term: **Intercepted Arc ($\overset{\frown}{BC}$)** Description: An arc that is between the two intersections of the sides of an angle and the circle	Term: **Intercepted Arc ($\overset{\frown}{BC}$)** Description: An arc that is between the two intersections of the sides of an angle and the circle	Term: **Intercepted Arc ($\overset{\frown}{BC}$)** Description: An arc that is between the two intersections of the sides of an angle and the circle
Term: **Central Angle ($\angle$BAC)** Description: An angle whose vertex is at the center of a circle.	Term: **Central Angle ($\angle$BAC)** Description: An angle whose vertex is at the center of a circle.	Term: **Central Angle ($\angle$BAC)** Description: An angle whose vertex is at the center of a circle.

Term: **Chord** $\left(\overline{BC}\right)$ Description: A segment connecting 2 points on a circle	Term: **Chord** $\left(\overline{BC}\right)$ Description: A segment connecting 2 points on a circle	Term: **Chord** $\left(\overline{BC}\right)$ Description: A segment connecting 2 points on a circle
Term: **Congruent Chords** $\left(\overline{BE} \cong \overline{CD}\right)$ Description: A pair of chords in a circle that are the same length. Congruent chords define congruent central angles and intercept congruent arcs.	Term: **Congruent Chords** $\left(\overline{BE} \cong \overline{CD}\right)$ Description: A pair of chords in a circle that are the same length. Congruent chords define congruent central angles and intercept congruent arcs.	Term: **Congruent Chords** $\left(\overline{BE} \cong \overline{CD}\right)$ Description: A pair of chords in a circle that are the same length. Congruent chords define congruent central angles and intercept congruent arcs.
Term: **Tangent (** ℓ **)** Description: A line that passes through exactly 1 point of a circle	Term: **Tangent (** ℓ **)** Description: A line that passes through exactly 1 point of a circle	Term: **Tangent (** ℓ **)** Description: A line that passes through exactly 1 point of a circle
Term: **Secant** $\left(\overleftrightarrow{AB}\right)$ Description: A line that passes through 2 points of a circle	Term: **Secant** $\left(\overleftrightarrow{AB}\right)$ Description: A line that passes through 2 points of a circle	Term: **Secant** $\left(\overleftrightarrow{AB}\right)$ Description: A line that passes through 2 points of a circle
Term: **Parallel Chords** $\left(\overline{AB} \parallel \overline{CD}\right)$ Description: A pair of chords in the same circle that are parallel. The arcs intercepted by the parallel chords are congruent.	Term: **Parallel Chords** $\left(\overline{AB} \parallel \overline{CD}\right)$ Description: A pair of chords in the same circle that are parallel. The arcs intercepted by the parallel chords are congruent.	Term: **Parallel Chords** $\left(\overline{AB} \parallel \overline{CD}\right)$ Description: A pair of chords in the same circle that are parallel. The arcs intercepted by the parallel chords are congruent.
Term: **Chord Distance From Center** Description: The distance from the center of a circle to a chord in the circle. Chords that are equidistant from the center of the circle are congruent.	Term: **Chord Distance From Center** Description: The distance from the center of a circle to a chord in the circle. Chords that are equidistant from the center of the circle are congruent.	Term: **Chord Distance From Center** Description: The distance from the center of a circle to a chord in the circle. Chords that are equidistant from the center of the circle are congruent.
Term: **Diameter Chord Theorem** Description: A diameter is either the perpendicular bisector of a chord or it is neither perpendicular nor the bisector.	Term: **Diameter Chord Theorem** Description: A diameter is either the perpendicular bisector of a chord or it is neither perpendicular nor the bisector.	Term: **Diameter Chord Theorem** Description: A diameter is either the perpendicular bisector of a chord or it is neither perpendicular nor the bisector.
Term: **Radius Tangent Theroem** Description: A radius that intersects a tangent line at the point of tangency is perpendicular to the tangent line.	Term: **Radius Tangent Theroem** Description: A radius that intersects a tangent line at the point of tangency is perpendicular to the tangent line.	Term: **Radius Tangent Theroem** Description: A radius that intersects a tangent line at the point of tangency is perpendicular to the tangent line.
Term: **Inscribed Angles (** $\angle$**BDC)** Description: An angle formed by 3 points on a circle, one of which is the vertex of the angle.	Term: **Inscribed Angles (** $\angle$**BDC)** Description: An angle formed by 3 points on a circle, one of which is the vertex of the angle.	Term: **Inscribed Angles (** $\angle$**BDC)** Description: An angle formed by 3 points on a circle, one of which is the vertex of the angle.

Term: **Angles of Intersecting Chords (vertex inside the circle)** Description: By connecting 2 pairs of endpoints of the chords, similar triangles can be formed and used to find the measure of the angles formed by the intersecting chords. (half the sum of the arcs)	Term: **Angles of Intersecting Chords (vertex inside the circle)** Description: By connecting 2 pairs of endpoints of the chords, similar triangles can be formed and used to find the measure of the angles formed by the intersecting chords. (half the sum of the arcs)	Term: **Angles of Intersecting Chords (vertex inside the circle)** Description: By connecting 2 pairs of endpoints of the chords, similar triangles can be formed and used to find the measure of the angles formed by the intersecting chords. (half the sum of the arcs)
Term: **Segments of Intersecting Chords (vertex inside the circle)** Description: By connecting 2 pairs of endpoints of the chords, similar triangles can be formed and used to find the measure of any of the segments formed by the intersecting chords.	Term: **Segments of Intersecting Chords (vertex inside the circle)** Description: By connecting 2 pairs of endpoints of the chords, similar triangles can be formed and used to find the measure of any of the segments formed by the intersecting chords.	Term: **Segments of Intersecting Chords (vertex inside the circle)** Description: By connecting 2 pairs of endpoints of the chords, similar triangles can be formed and used to find the measure of any of the segments formed by the intersecting chords.
Term: **Angles of Intersecting Secants (vertex outside the circle)** Description: By connecting points where the secants intersect the circle, similar triangles can be formed and used to find the measure of the angle formed by the intersecting secants. (half the difference of the arcs)	Term: **Angles of Intersecting Secants (vertex outside the circle)** Description: By connecting points where the secants intersect the circle, similar triangles can be formed and used to find the measure of the angle formed by the intersecting secants. (half the difference of the arcs)	Term: **Angles of Intersecting Secants (vertex outside the circle)** Description: By connecting points where the secants intersect the circle, similar triangles can be formed and used to find the measure of the angle formed by the intersecting secants. (half the difference of the arcs)
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Term: **Angles of Intersecting Tangents (vertex outside the circle)** Description: By connecting points where the secants intersect the circle, similar triangles can be formed and used to find the measure of the angle formed by the intersecting tangents. (half the difference of the arcs)	Term: **Angles of Intersecting Tangents (vertex outside the circle)** Description: By connecting points where the secants intersect the circle, similar triangles can be formed and used to find the measure of the angle formed by the intersecting tangents. (half the difference of the arcs)	Term: **Angles of Intersecting Tangents (vertex outside the circle)** Description: By connecting points where the secants intersect the circle, similar triangles can be formed and used to find the measure of the angle formed by the intersecting tangents. (half the difference of the arcs)
Term: **Segments of Intersecting Tangents (vertex outside the circle)** Description: The segments between the intersection of the tangents and their intersections with the circles are congruent	Term: **Segments of Intersecting Tangents (vertex outside the circle)** Description: The segments between the intersection of the tangents and their intersections with the circles are congruent	Term: **Segments of Intersecting Tangents (vertex outside the circle)** Description: The segments between the intersection of the tangents and their intersections with the circles are congruent
Term: **Angles of Intersecting Secant and Tangent (vertex outside the circle)** Description: By connecting points where the secants intersect the circle, similar triangles can be formed and used to find the measure of the angle formed by the intersecting secants. (half the difference of the arcs)	Term: **Angles of Intersecting Secant and Tangent (vertex outside the circle)** Description: By connecting points where the secants intersect the circle, similar triangles can be formed and used to find the measure of the angle formed by the intersecting secants. (half the difference of the arcs)	Term: **Angles of Intersecting Secant and Tangent (vertex outside the circle)** Description: By connecting points where the secants intersect the circle, similar triangles can be formed and used to find the measure of the angle formed by the intersecting secants. (half the difference of the arcs)
Term: **Segments of Intersecting Secant and Tangent (vertex outside the circle)** Description: By connecting points where the secant & tangent intersect the circle, similar triangles can be formed and used to find the measure of any of the segments formed by the intersecting lines.	Term: **Segments of Intersecting Secant and Tangent (vertex outside the circle)** Description: By connecting points where the secant & tangent intersect the circle, similar triangles can be formed and used to find the measure of any of the segments formed by the intersecting lines.	Term: **Segments of Intersecting Secant and Tangent (vertex outside the circle)** Description: By connecting points where the secant & tangent intersect the circle, similar triangles can be formed and used to find the measure of any of the segments formed by the intersecting lines.
Term: **Angles and Segments of Intersecting Secants and Tangents (vertex on the circle)** Description: These have the same relationship between arcs and angles as the inscribed angle Formula:	Term: **Angles and Segments of Intersecting Secants and Tangents (vertex on the circle)** Description: These have the same relationship between arcs and angles as the inscribed angle Formula:	Term: **Angles and Segments of Intersecting Secants and Tangents (vertex on the circle)** Description: These have the same relationship between arcs and angles as the inscribed angle Formula: