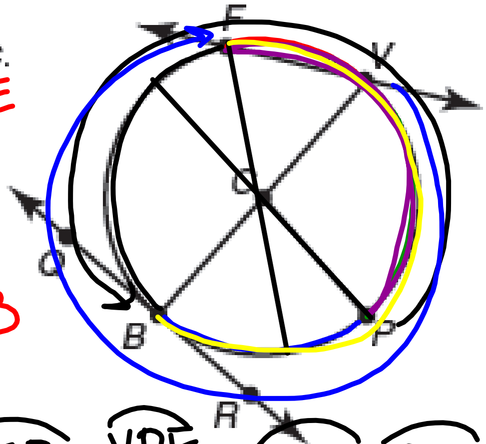
Questions on 9.1?

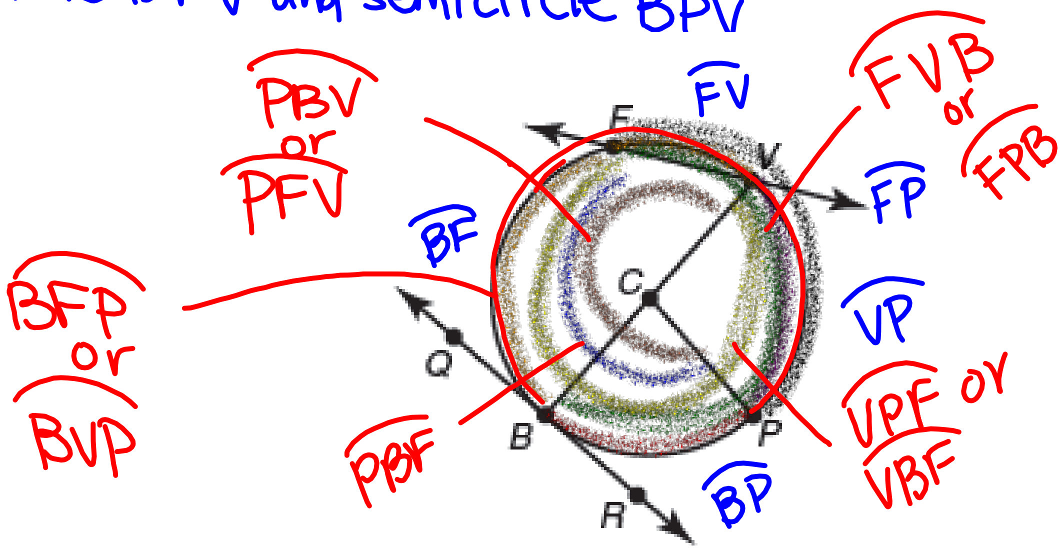
A3 - Go over the problems below from last class to help prepare you for your quiz!

Circle C is shown. Identify the indicated components of circle C.



1. Name the chord(s). $\overline{VB}$ or $\overline{BV}$; $\overline{FV}$ or $\overline{VF}$
2. Name the tangent(s). $\overleftrightarrow{QR}$ or $\overleftrightarrow{QB}$ or $\overleftrightarrow{BR}$ . . .
3. Name the secant(s). $\overleftrightarrow{VF}$
4. Name the central angle(s). $\angle PCV$ and $\angle PCB$
5. Name the inscribed angle(s). $\angle FVB$
6. Name the major arc(s). $\widehat{BVF}$ (or $\widehat{BPF}$), $\widehat{PFP}$, $\widehat{VPF}$, $\widehat{PBF}$, $\widehat{PBV}$
7. Name the minor arc(s). $\widehat{BP}$, $\widehat{VP}$, $\widehat{FV}$, $\widehat{BF}$, $\widehat{FP}$
8. Name the semicircle(s).

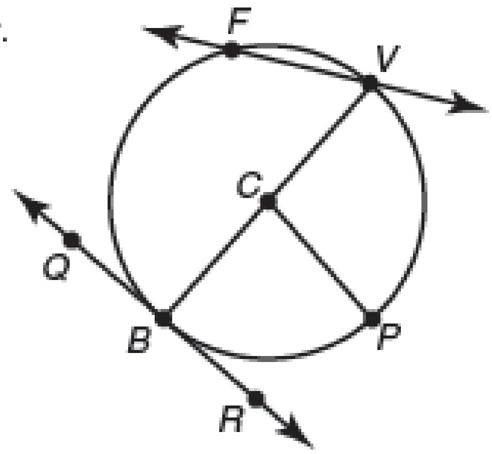
Semicircle BFV and semicircle BPV



Questions on 9.1?

A5 - Go over the problems below from last class to help prepare you for your quiz!

Circle *C* is shown. Identify the indicated components of circle *C*.



1. Name the chord(s).
2. Name the tangent(s).
3. Name the secant(s).
4. Name the central angle(s).
5. Name the inscribed angle(s).
6. Name the major arc(s).
7. Name the minor arc(s).
8. Name the semicircle(s).

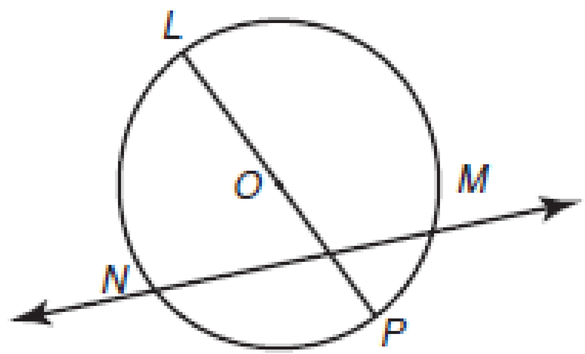
Jan 4-9:21 AM

Circle Parts Quiz

Use circle O below and label whether each below is the center, a radius, a diameter, a chord, a tangent, or a secant.

1) $\overline{LP}$

2) $\overleftrightarrow{MN}$



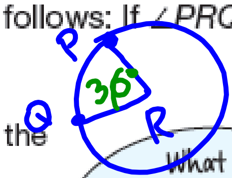
9.2 Take the Wheel

Central Angles, Inscribed Angles, and Intercepted Arcs

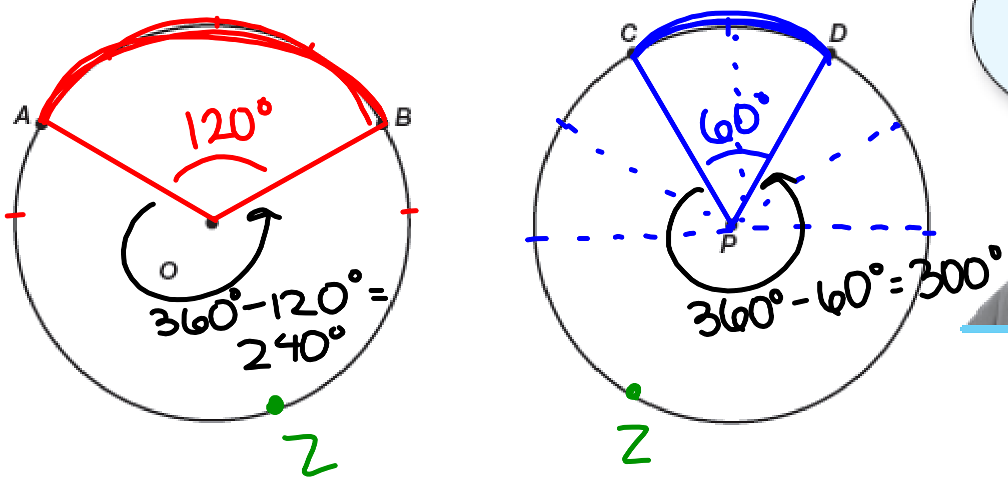
pg.661-662 in your book

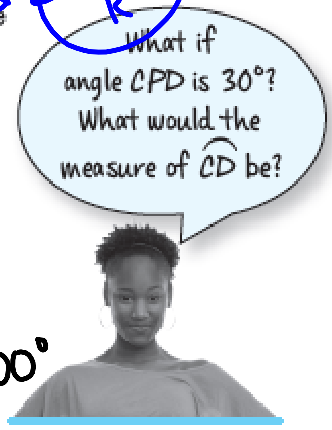
Recall that the degree measure of a circle is 360°.

Each minor arc of a circle is associated with and determined by a specific central angle. The **degree measure** of a minor arc is the same as the degree measure of its central angle. For example, if the measure of central angle *PRQ* is 30°, then the degree measure of its minor arc *PQ* is equal to 30°. Using symbols, this can be expressed as follows: If $\angle PRQ$ is a central angle and $m\angle PRQ = 30°$, then $m\overset{\frown}{PQ} = 30°$.



1. The circles shown represent steering wheels, and the points on the circles represent the positions of a person's hands.





$\frac{180}{6} = 30°$

For each circle, use the given points to draw a central angle. The hand position on the left is 10–2 and the hand position on the right is 11–1.

a. What are the names of the central angles?

$\angle AOB$ and $\angle CPD$

b. Without using a protractor, determine the central angle measures. Explain your reasoning.

$m\angle AOB = 120°$ & $m\angle CPD = 60°$

c. How do the measures of these angles compare?

$m\angle CPD = \frac{1}{2} \cdot m\angle AOB$

$60° = \frac{1}{2} \cdot 120°$

pg.663 in your book

d. Why do you think the hand position represented by the circle on the left is recommended and the hand position represented on the right is not recommended?

So your hands don't hit your face.

e. Describe the measures of the minor arcs.

$m\overset{\frown}{AB} = 120°$ $m\overset{\frown}{CD} = 60°$

$m\overset{\frown}{CD} = \frac{1}{2} \cdot m\overset{\frown}{AB}$

f. Plot and label point *Z* on each circle so that it does not lie between the endpoints of the minor arcs. Determine the measures of the major arcs that have the same endpoints as the minor arcs.

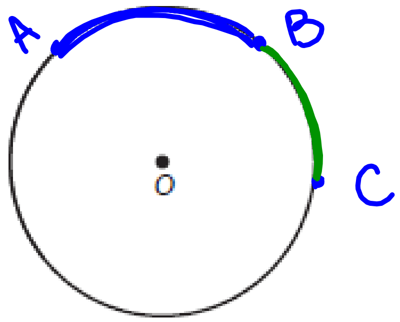
$m\overset{\frown}{AZB} = 240°$

and $m\overset{\frown}{CZD} = 300°$

pg.664 in your book

Adjacent arcs are two arcs of the same circle sharing a common endpoint.

4. Draw and label two adjacent arcs on circle O shown.



$\overset{\frown}{AB}$ & $\overset{\frown}{BC}$ are adjacent arcs.

The **Arc Addition Postulate** states: "The measure of an arc formed by two adjacent arcs is the sum of the measures of the two arcs."

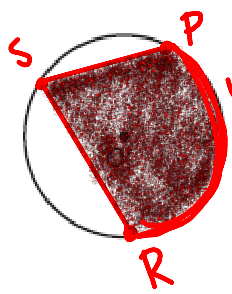
5. Apply the Arc Addition Postulate to the adjacent arcs you created.

$$m\overset{\frown}{AB} + m\overset{\frown}{BC} = m\overset{\frown}{AC}$$

An *intercepted arc* is an arc associated with and determined by angles of the circle. An **intercepted arc** is a portion of the circumference of the circle located on the interior of the angle whose endpoints lie on the sides of an angle.

6. Consider circle O.

   a. Draw inscribed $\angle PSR$ on circle O.



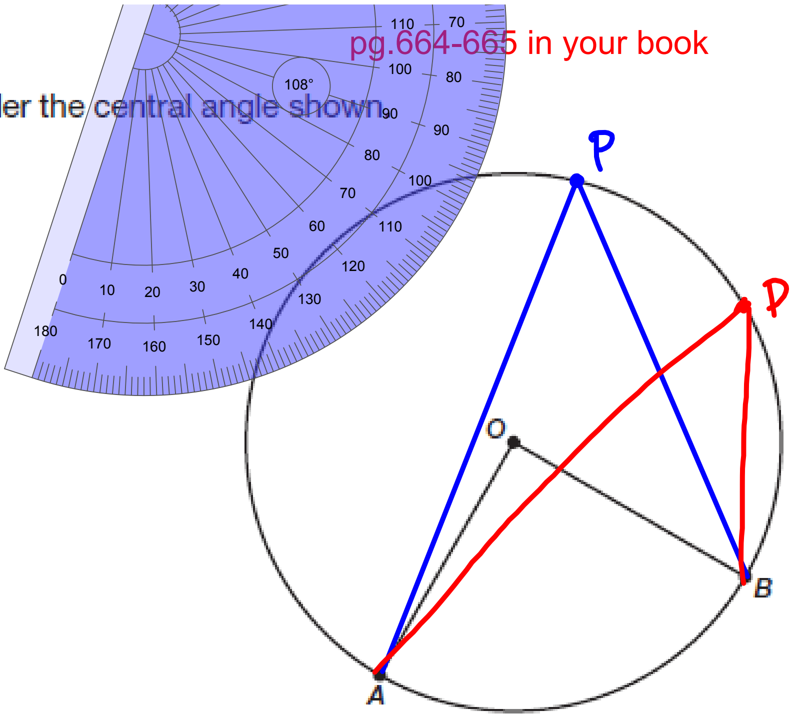
intercepted arc

   b. Name the intercepted arc associated with $\angle PSR$.

$\overset{\frown}{PR}$

pg.664-665 in your book

7. Consider the central angle shown.



a. Use a straightedge to draw an inscribed angle that contains points *A* and *B* on its sides. Name the vertex of your angle point *P*. What do the angles have in common?

Points A & B

b. Use your protractor to measure the central angle and the inscribed angle. How is the measure of the inscribed angle related to the measure of the central angle and the measure of $\overset{\frown}{AB}$? $m\angle AOB = 90°$

$m\angle APB = 45°$

c. Use a straightedge to draw a different inscribed angle that contains points *A* and *B* on its sides. Name its vertex point *Q*. Measure the inscribed angle. How is the measure of the inscribed angle related to the measure of the central angle and the measure of $\overset{\frown}{AB}$?

d. Use a straightedge to draw one more inscribed angle that contains points *A* and *B* on its sides. Name its vertex point *R*. Measure the inscribed angle. How is the measure of the inscribed angle related to the measure of the central angle and the measure of $\overset{\frown}{AB}$?

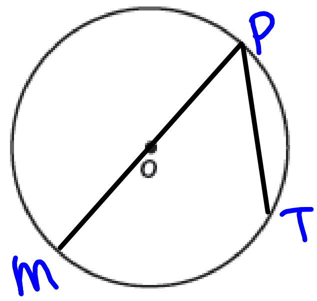
8. What can you conclude about inscribed angles that have the same intercepted arc?

inscribed angle measure is half the measure of the central angle, when the angles intercept the same arc.

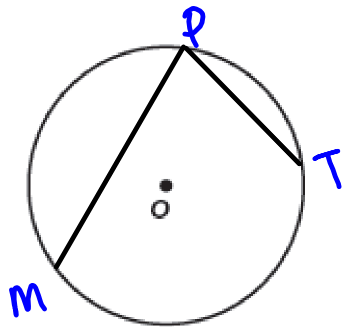
pg.666 in your book

10. Inscribed angles formed by two chords can be drawn three different ways with respect to the center of the circle.

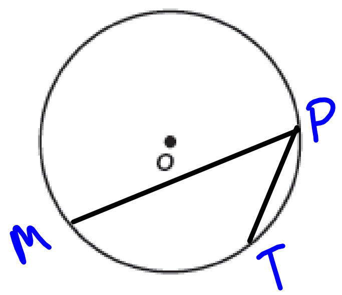
Case 1: Use circle *O* shown to draw and label inscribed ∠*MPT* such that the center point lies on one side of the inscribed angle.

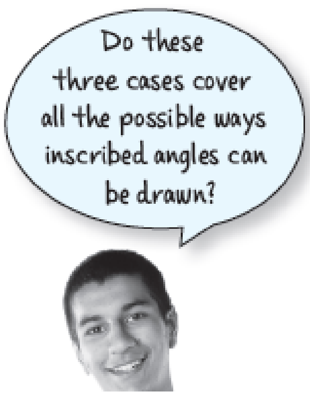


Case 2: Use circle *O* shown to draw and label inscribed ∠*MPT* such that the center point lies on the interior of the inscribed angle.



Case 3: Use circle *O* shown to draw and label inscribed ∠*MPT* such that the center point lies on the exterior of the inscribed angle.



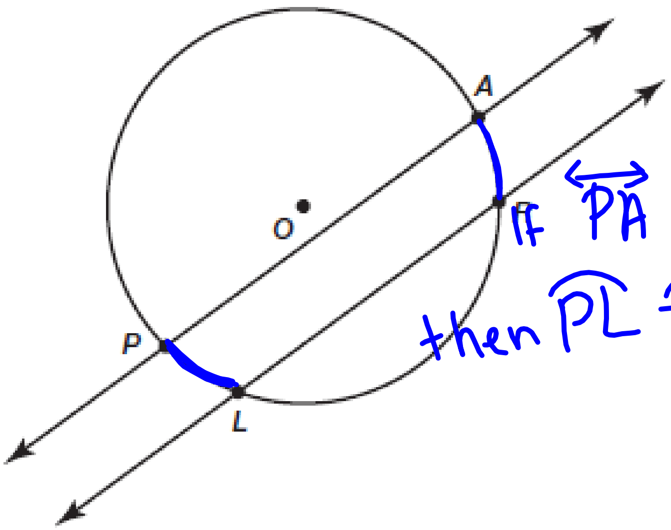


The **Inscribed Angle Theorem** states: "The measure of an inscribed angle is half the measure of its intercepted arc."

Jan 4-9:17 AM

pg.671 in your book

Do parallel lines intersecting a circle intercept congruent arcs on the circle?

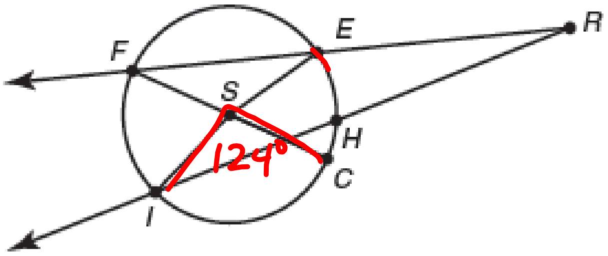


If $\overleftrightarrow{PA} \parallel \overleftrightarrow{LR}$, then $\overset{\frown}{PL} \cong \overset{\frown}{AR}$

You have just proven the Parallel Lines–Congruent Arcs Conjecture. It is now known as the Parallel Lines–Congruent Arcs Theorem which states that parallel lines intercept congruent arcs on a circle.

NOT in your book

Use circle S to answer each question. Explain your reasoning.



1. Suppose that $m\widehat{CE} = 59°$. What is $m\widehat{CFE}$?

$360° - 59° = 301°$

2. Suppose that $m\angle CSI = 124°$. What is $m\widehat{FI}$?

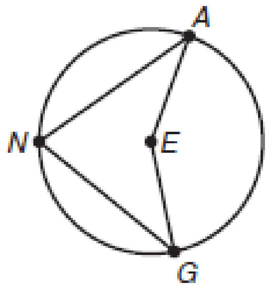
$180° - 124° = 56°$

3. Suppose that $m\widehat{CE} = 55°$. What is $m\angle EFC$?

4. Suppose that $m\angle FSI = 71°$. What is $m\widehat{IC}$?

NOT in your book

5. In circle E shown, $m\angle ANG = 74°$.

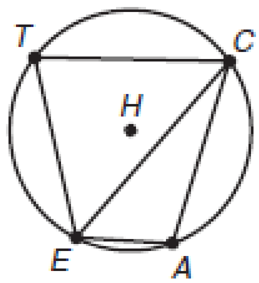


a. Determine $m\angle AEG$.

b. Determine $m\widehat{ANG}$.

6. In circle H shown, $m\widehat{CA} = 105°$, $m\widehat{EA} = 47°$, and $m\widehat{ET} = 100°$.

a. Determine $m\angle ETC$.



b. Determine $m\angle TCE$.

c. Determine $m\angle CAE$.

d. Determine $m\angle TEA$.

Jan 4-9:25 AM

Homework

Finish Lesson 9.2

Aug 24-2:00 PM