
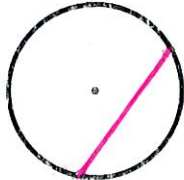


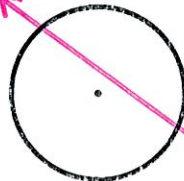




Day 1 – Circle Vocabulary and Central Angles

<p>Circle</p>	<p>set of all points equidistant from a given point called the center of the circle</p>	
<p>Chord</p>	<p>a segment whose endpoints are on the circle</p>	
<p>Diameter</p>	<p>distance across the circle through its <u>center</u> (twice the length of the radius)</p>	
<p>Radius</p>	<p>distance from the center to point on circle (half the length of the diameter)</p>	
<p>Secant</p>	<p>a line that intersects the circle at exactly <u>TWO</u> points</p>	
<p>Tangent</p>	<p>a <u>line</u> that intersects the circle exactly ONE time</p>	
<p>Point of Tangency</p>	<p>where the tangent line intersects the circle</p>	

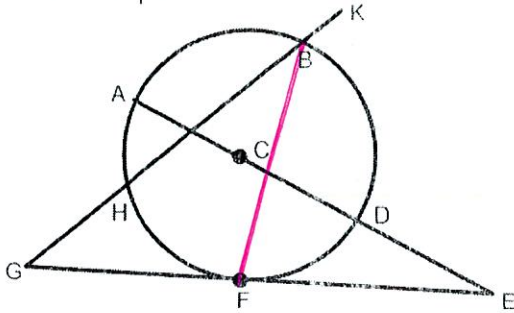
Circles have 360° degrees.

Semicircles have 180° degrees.

REMEMBER: Vertical Angles are congruent

and Linear Pairs are supplementary

Practice: Tell whether the line or segment is best described as a chord, a secant, a tangent, a diameter, or a radius—be specific!



- a. \overline{AD} diameter
- b. \overline{CD} radius
- c. \overline{EG} Tangent
- d. \overline{HB} chord
- e. \overline{FB} chord
- g. \overline{GK} secant

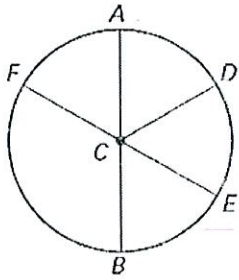
Arcs & Central Angles

An **arc** is an unbroken part of a circle consisting of two points called the endpoints and all the points on the circle between them.

Arc or Angle	Definition	Measure	Picture
Minor Arc	An arc whose points are on or in the interior of a central angle. Minor arcs are less than 180° and only use two letters to name them.	The measure of a minor arc is equal to the measure of the central angle.	$m\widehat{AC} = m\angle AOC$
Major Arc	An arc whose endpoints are on or in the exterior of a central angle. Major arcs are between 180° and 360° . Three letters are used to name a major arc.	The measure of a major arc is equal to 360° minus the measure of its central angle or minor arc.	$m\widehat{ABC} = 360 - m\widehat{AC}$ OR $m\widehat{ABC} = 360 - m\angle AOC$
Semicircle	An arc whose endpoints lie on a diameter. Semicircles are named using three letters.	The measure of a semicircle is 180° .	$m\widehat{ABC} = 180^\circ$
Central Angle	An angle whose vertex is the center of the circle.	The measure of a central angle is equal to the measure of its minor arc.	$m\angle AOC = m\widehat{AC}$
Name	Theorem	Hypothesis	Conclusion
Arc Addition Postulate	The measure of an arc formed by two adjacent arcs is the sum of the measures of the two arcs.	$m\widehat{QP} + m\widehat{PR} = m\widehat{QR}$	

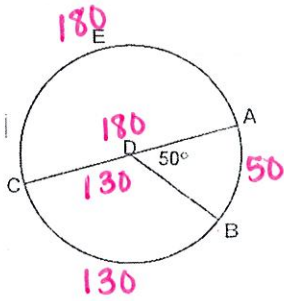
Practice

Example: Identify the following arcs are minor, major, or semicircle.



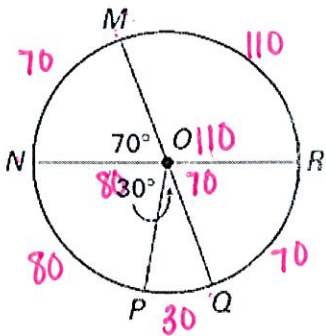
1. \widehat{AE} Minor
2. \widehat{FDE} Semicircle
3. \widehat{FA} Minor
4. \widehat{DFB} Major

Example: Find the measure of the following:



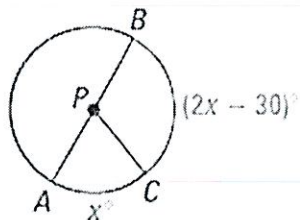
1. $m\widehat{AB} = 50^\circ$
2. $m\widehat{BC} = 130^\circ$
3. $m\widehat{AEC} = 180^\circ$
4. $m\widehat{BCA} = 310^\circ$
 $130 + 180 = 310$ OR $360 - 50 = 310$

Example: Find the measure of the following:



1. $m\widehat{MN} = 70^\circ$
2. $m\widehat{NQ} = 110^\circ$
 $80 + 30 = 110$
3. $m\widehat{NQR} = 180^\circ$
 $80 + 30 + 70 = 180$
4. $m\widehat{MRP} = 210^\circ$
 $110 + 70 + 30 = 210$
5. $m\widehat{QR} = 70^\circ$
6. $m\widehat{MR} = 110^\circ$
7. $m\widehat{QMR} = 290^\circ$
 $360 - 70 = 290$
8. $m\widehat{PQ} = 30^\circ$
9. $m\widehat{PRN} = 280^\circ$
 $360 - 80 = 280$
10. $m\widehat{MQN} = 290^\circ$
 $360 - 70 = 290$

Example: Find the value of x. Then find the measure of arc BC.



$$\begin{aligned}
 x + 2x - 30 &= 180 \\
 3x - 30 &= 180 \\
 3x &= 150 \\
 \boxed{x = 50}
 \end{aligned}$$

$$\begin{aligned}
 m\widehat{BC} &= 2x - 30 \\
 &= 2(50) - 30 \\
 &= 100 - 30 \\
 \boxed{m\widehat{BC} = 70^\circ}
 \end{aligned}$$