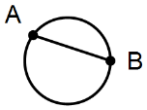
SM 2 **Date:** **Section:12.1**

Objective: Circle Vocabulary, arc and angle measures notes

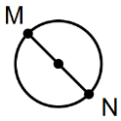
Circle: All points in a plane that are the same distance from a given point, called the ***center*** of the circle.

Chord: A segment with both endpoints on a circle.



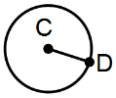
$\overline{AB}$ is a chord.

Diameter: A chord that passes through the center of a circle.



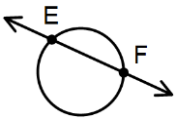
$\overline{MN}$ is a diameter.

Radius: A segment with one endpoint on the circle and one endpoint at the center of the circle.



$\overline{CD}$ is a radius.

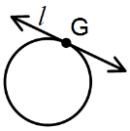
Secant: A line that intersects a circle at two points.



$\overleftrightarrow{EF}$ is a secant.

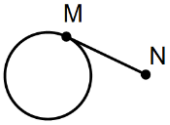
Tangent: A line in the plane of the circle that intersects a circle at exactly one point.

Point of Tangency: The point where a tangent intersects a circle.



Line l is a tangent. G is the point of tangency.

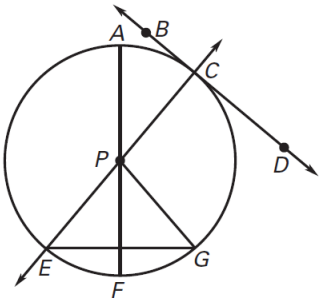
Tangent Segment: A segment that touches a circle at one of its endpoints and lies in the line that is tangent to the circle at that point.



$\overline{MN}$ is a tangent segment.

Example: In circle P, name the term that best describes the given line, segment, or point.

$\overline{AF}$	C
$\overline{EG}$	$\overleftrightarrow{CE}$
$\overline{PF}$	$\overleftrightarrow{BD}$
$\overline{PG}$	P

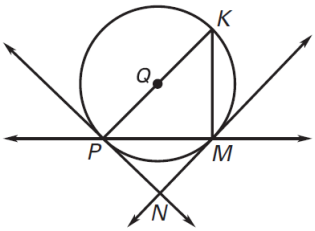


Example: In $\odot Q$, identify a chord, a diameter, two radii, a secant, two tangents, and two points of tangency.

Chord: Diameter:

Radii: Secant:

Tangents: Points of tangency:

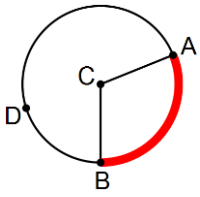


Central Angle: An angle in a circle whose vertex is the center of the circle and whose sides are radii of the circle

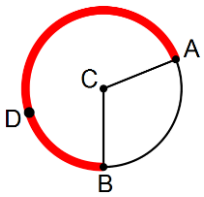
Minor Arc: All the points on a circle that lie in the interior of a central angle whose measure is less than 180°.

Major Arc: All the points on a circle that do not lie on the corresponding minor arc.

AB is a minor arc.



ADB is a major arc.

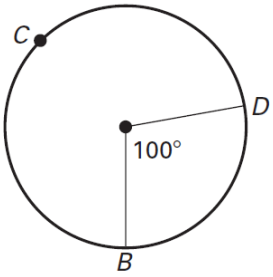


Measure of a Central Angle: is the measure of the

Measure of a Minor Arc: is the measure of its central angle.

Measure of a Major Arc: 360° minus the measure of the minor arc.

Example:

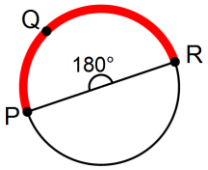


Measure of central angle:_____ Name the central angle:_____

Measure of the minor arc:_____ Name the minor arc:_____

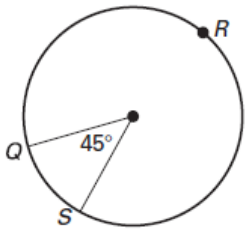
Measure of the major arc:_____ Name the major arc:_____

Semicircle: An arc whose central angle measures 180°.

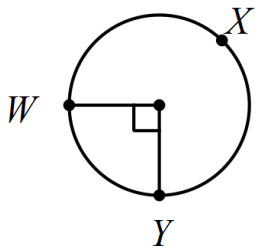


Examples: Name the major and minor arcs and the central angle. Find the measure of each.

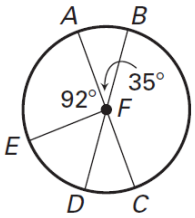
a)



b)



Examples: $\overline{AC}$ and $\overline{BD}$ are diameters. Find the indicated measures.



a) mDC

b) mBC

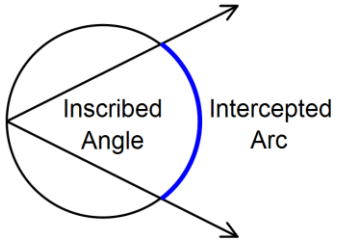
c) $mCDE$

d) mDE

e) $mABE$

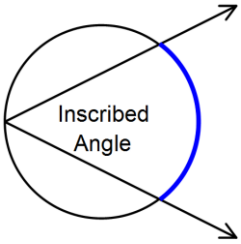
f) $mABD$

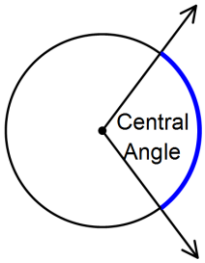
Inscribed Angle: An angle whose vertex is on a circle and whose sides contain chords of the circle.



Intercepted Arc: An arc that lies in the interior of an inscribed angle and has endpoints on the sides of the angle.

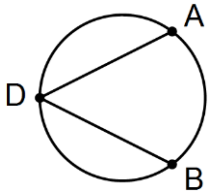
WARNING: Don't get ***inscribed*** angles and ***central*** angles mixed up!





Theorem: If an angle is inscribed in a circle, then its measure is half the measure of its intercepted arc.

Example:

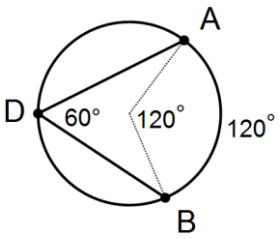


$m\angle ADB = \frac{1}{2} mAB$

$mAB = 2m\angle ADB$

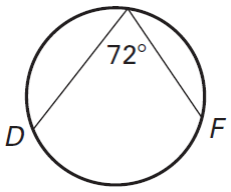
$m\angle ADB = 60°$

$mAB = 120°$

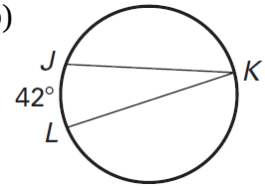


Examples: Find the measure of the inscribed angle or the intercepted arc.

a)



b)



c)