Today's Standard

Circle Properties

Circle line segment vocabulary

C.2 Identify and describe relationships among inscribed angles, radii, chords, tangents, and secants. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.

Switch to dual page

Vocabulary

Circle Properties

circle - the set of all points equidistant from a given point called the center.

diameter- a segment from a point on a circle, through center to another point on the circle.

radius - a segment from the center to a point on the circle.

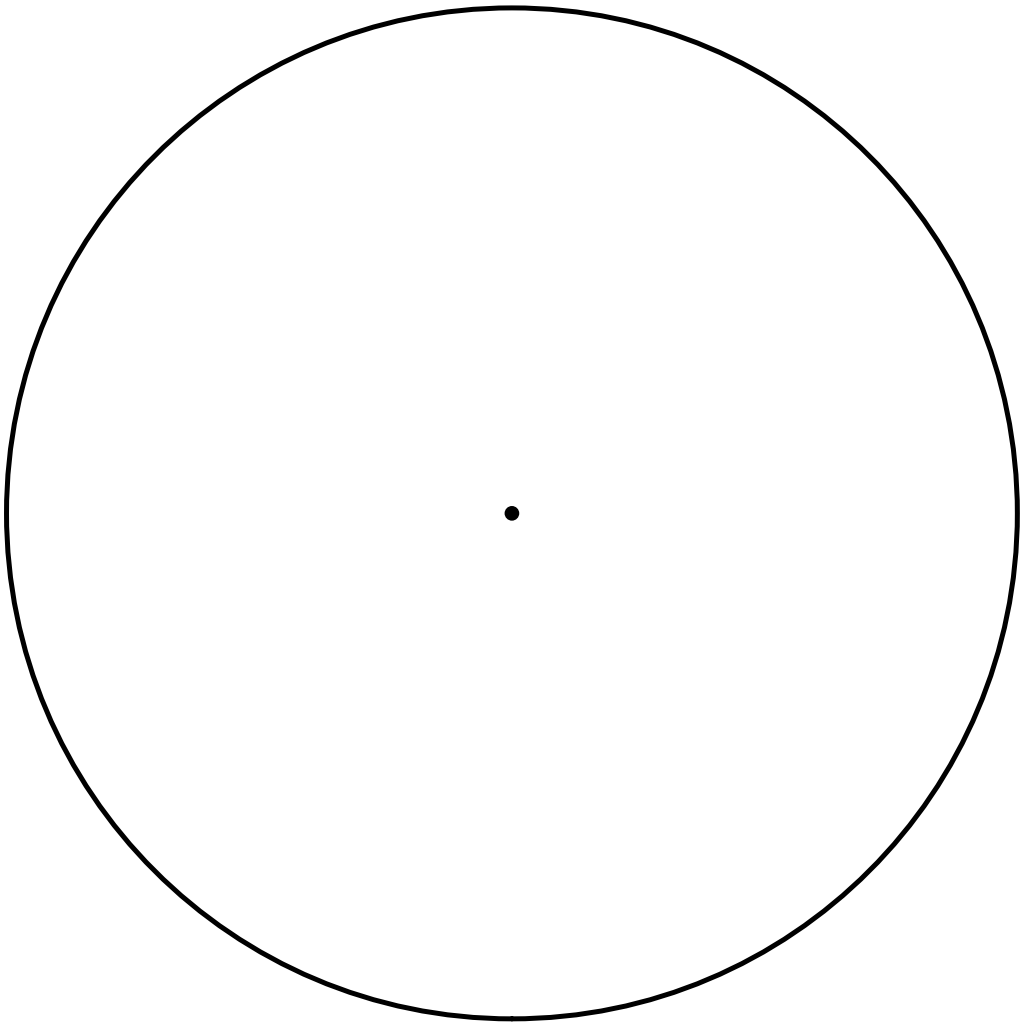
Secant - A line that intersects a circle at two points

Tangent - A line that contacts a circle at only one point. Perpendicular to radius.

Chord - A line that links two points on a circle

Circle Properties

Copy onto your circle



Vocabulary Circle Properties

Central Angle - an angle with a vertex at the center of the circle.

arc measure - degrees of a given portion of a circle. (Equal to central angle that forms it.)

minor arc - arc with a measure between 0° and 180° , $0^\circ < \theta < 180^\circ$

Semicircle - Half of a circle, arc measure = 180°

major arc - arc with a measure between 180° and 360° , $180^\circ < \theta < 360^\circ$

circumference - the perimeter of a circle, $C=2\pi r$

area of a circle- the two dimensional space a circle covers, $A_{circle}=\pi r^2$

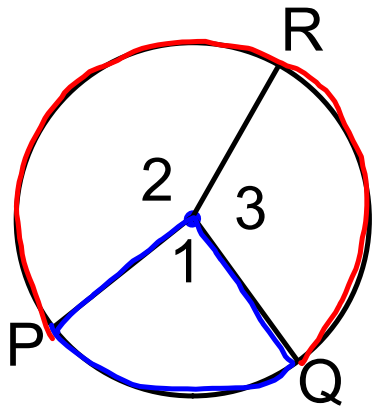
Circles Properties

Ex. 1 Name the arc created by central angle 1.

$\overset{\frown}{PQ}$

Ex. 2 Name the major arc created by central angle 1.

$\overset{\frown}{PRQ}$



* Every central angle creates a major and minor arc.
* major arcs - 3 letters
* minor arc - 2 letters

4 Corners

4 Corners

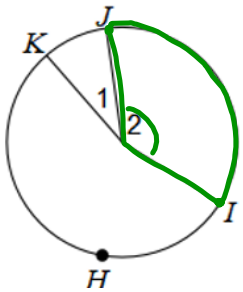
Circles Properties

Name the central angle that forms the arc given.

∠1

1) $\overset{\frown}{JI}$

Major Arc for ∠2



∠2

Major Arc for ∠1

4 Corners

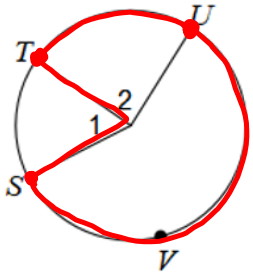
Circles Properties

Name the central angle that forms the arc given.

∠1

3) $\overset{\frown}{SUT}$

Major Arc for ∠2



∠2

Major Arc for ∠1

Circles Properties

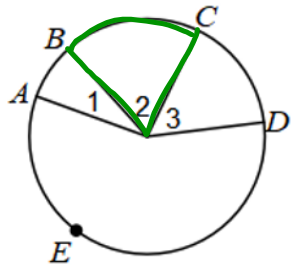
4 Corners

Name the arc created by the given central angle.

$\overset{\frown}{BEC}$

$\overset{\frown}{BC}$

13) $\angle 2$



$\overset{\frown}{BAD}$

$\overset{\frown}{AC}$

* always minor arc, unless specified.

4 Corners

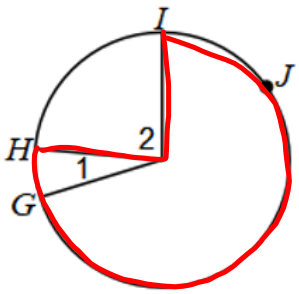
Circles Properties

Name the arc created by the given central angle.

GI

HI

14) Major arc for $\angle 2$



GJI

HJI

* other option: HGI

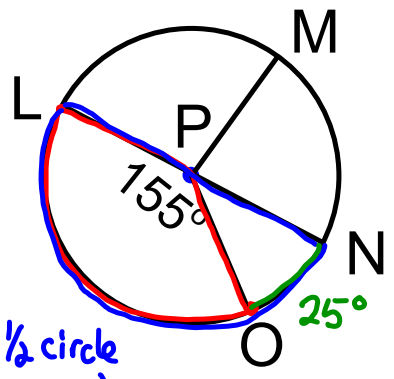
IJH

IGH

Circles Properties

Ex. 3 What is the $m\overset{\frown}{LO}$?

$m\overset{\frown}{LO} = 155°$



Ex. 4 What is the $m\overset{\frown}{LON}$?

$m\overset{\frown}{LON} = 180°$ ↑ semicircle → ½ circle

½(360°)

Ex. 5 What is the $m\overset{\frown}{ON}$?

$m\overset{\frown}{ON} = 180 - 155 = 25°$

Vertex location: Equation

Center: angle = arc

Circles Properties

Ex. 6 What is the m∠KPM?

angle = arc $m\angle KPM = 118°$

Ex. 7 What is the m∠LPM?

$180°$ straight angle Diameter

Ex. 8 What is the m∠NPO?

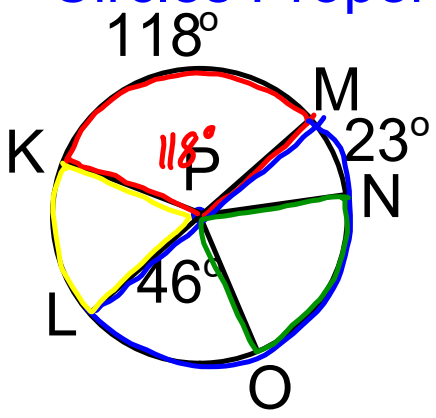
$23 + 46 + \angle NPO = 180$

$\angle NPO = 111°$

Ex. 9 What is $m\overset{\frown}{LK}$?

$m\overset{\frown}{LK} + 118 = 180$

$m\overset{\frown}{LK} = 62°$



Circles Properties

Practice Problems

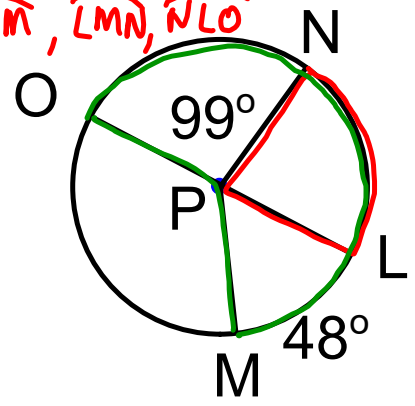
Everybody Knows!!
(Group Competition)

Remember a diameter makes 180^{o}

5,7,9,15,17,19

Review:

1. Name a minor arc and a major arc from the circle shown. $\overset{\frown}{NO}, \overset{\frown}{NL}, \overset{\frown}{LM}, \overset{\frown}{MO}$ $\overset{\frown}{ONM}, \overset{\frown}{LMN}, \overset{\frown}{NLO}$



2. What is $m\overset{\frown}{NL}$?

$99 + m\overset{\frown}{NL} = 180$

$m\overset{\frown}{NL} = 81°$

3. What is the $m\overset{\frown}{MNO}$?

$180 + 48 = m\overset{\frown}{MNO}$

$228° = m\overset{\frown}{MNO}$

Your Turn

Quizlet