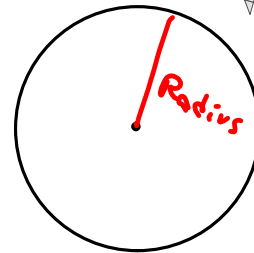
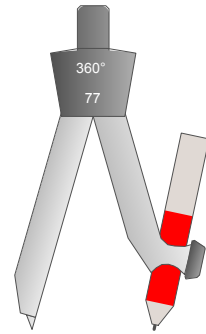
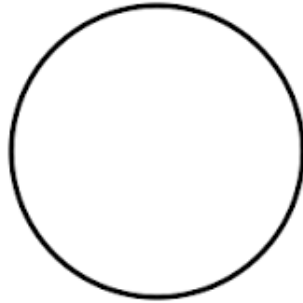


Chapter 9 - Circles!!!

In your groups, come up with a definition for circle without using the word "round."



9.0 Circle Definitions and Arcs Day 1

Learning Targets:

- a. I can identify and name the parts of a circle: radius, diameter, chord, tangent, point of tangency, center, circumscribed polygon, inscribed polygon, arc, central angle, and inscribed angles.
- b. I can define congruent and concentric circles.

Take 5 minutes in your groups to read through each of the following definitions and come up with as many examples as you can for each term.

Definitions:

Circle: The set of all points in a plane with a given distance from a given point.

Example(s): $\odot G$ (or circle G)

Center: The coplanar point from which all points on the circle are the same distance.

Example(s): $\cdot G$

Radius: A line segment from the center of a circle to a point on the circle.

Example(s): $\overline{GS}, \overline{GA}, \overline{GT}, \overline{GN}, \overline{GE}$

Radii

Chord: A line segment whose endpoints both lie on the circle.

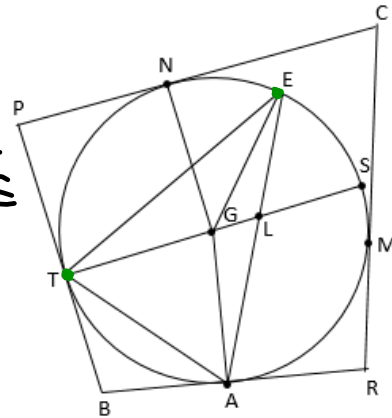
Example(s): $\overline{TE}, \overline{TA}, \overline{EA}, \overline{TS}$

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

Example(s): \overline{TS}

Tangent: A line, segment, or ray which lies outside the circle touches a circle at exactly one point.

Example(s): $\overline{BR}, \overline{PT}, \overline{PB}, \overline{PC}, \overline{CR}$



~~Tangent: A line, segment, or ray which touches a circle at exactly one point.~~

~~Example(s):~~

Point of Tangency: The point of intersection of a tangent and a circle.

Example(s): $\cdot T, \cdot N, \cdot A, \cdot M$

Arc: Two points on a circle and the continuous part of the circle between them.

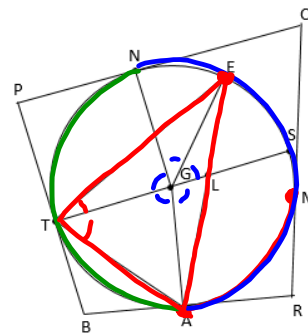
Example(s): $\overbrace{AM}^{\text{red}}, \overbrace{ATN}^{\text{green}}, \overbrace{AMN}^{\text{blue}}$

Central Angle: An angle whose vertex is the center and whose sides pass through the endpoints of an arc.

Example(s): $\angle NGT, \angle NGS, \angle AGS, \angle TGA, \dots$

Inscribed Angle: An angle whose vertex is on the circle and whose sides pass through the endpoints of an arc.

Example(s): $\angle TEA, \angle STA, \angle STE, \angle TAE$



A few more definitions:

Circumscribed Polygon: A polygon that is located outside of a circle whose sides are tangents of the circle.

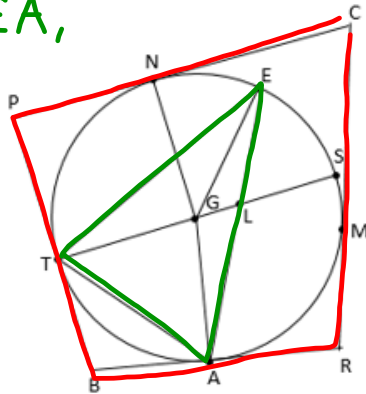
Example(s):

Quadrilateral PCRB

Inscribed Polygon: A polygon that is located inside of a circle and whose vertices are all on the circle.

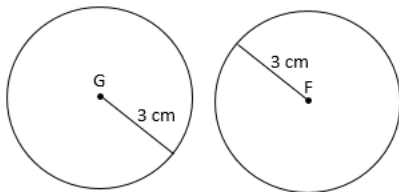
Example(s):

$\triangle TEA$,



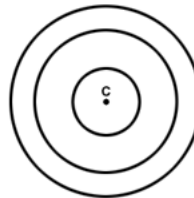
Congruent Circles:

Circles which have the same radius length.



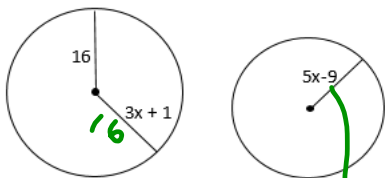
Concentric Circles:

Circles that share the same center.



Determine if each of the following sets of circles are congruent. The circles may not be drawn to scale.

1.

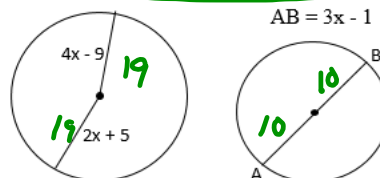


$$\begin{aligned} 3x+1 &= 16 \\ 3x &= 15 \\ x &= 5 \end{aligned}$$

YES

$$\begin{aligned} 5(5)-9 & \\ &= 16 \end{aligned}$$

2.



$$\begin{aligned} 4x-9 &= 2x+5 \\ 2x-9 &= 5 \\ 2x &= 14 \\ x &= 7 \end{aligned}$$

NOT
Congruent

$$\begin{aligned} 3(7)-1 & \\ AB &= 20 \end{aligned}$$

Assignment: 9.0 Circle Definitions Day 1