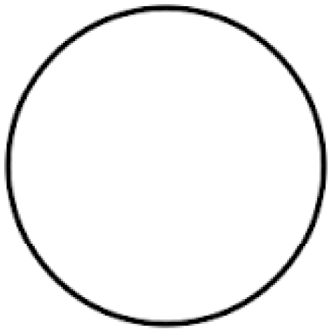
Chapter 9 - Circles!!!

In your groups, come up with a definition for the term 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:

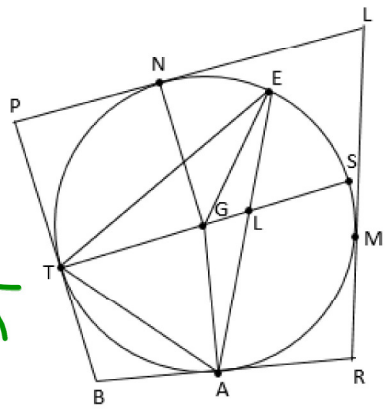
Circle: The set of all points in a plane with a given distance from a given point.
Example(s): Circle G ⊙G

Center: The coplanar point from which all points on the circle are the same distance.
Example(s): • G

Radius: A line segment from the center of a circle to a point on the circle.
Example(s): $\overline{GN}, \overline{GE}, \overline{GS}, \overline{GA}, \overline{GT}$

Chord: A line segment whose endpoints both lie on the circle. $\overline{GM}$
Example(s): $\overline{TS}, \overline{EA}, \overline{ET}, \overline{TA}$ $\overline{SA}$

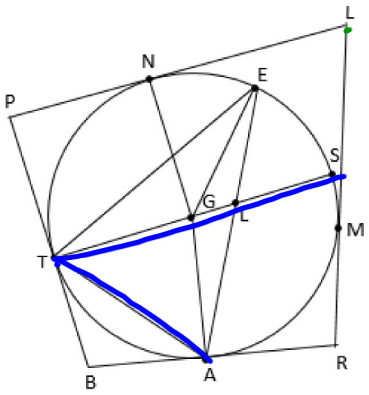
Diameter: A chord which passes through the center of a circle.
Example(s): $\overline{TS}$



Tangent: A line, segment, or ray which touches a circle at exactly one point.
Example(s): $\overline{PL}, \overline{PB}, \overline{BR}, \overline{RL}$

Point of Tangency: The point of intersection of a tangent and a circle.
Example(s): Point N
•N, •M, •A, •T

Arc: Two points on a circle and the continuous part of the circle between them.
Example(s): $\overset{\frown}{NT}, \overset{\frown}{ES}, \overset{\frown}{MA}$



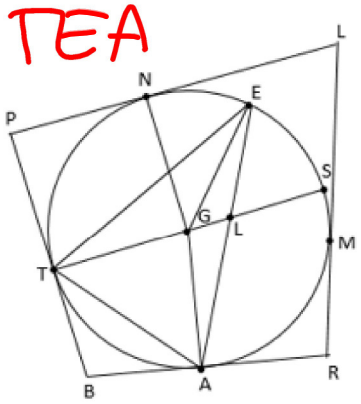
Central Angle: An angle whose vertex is the center and whose sides pass through the endpoints of an arc.
Example(s): $\angle TGN, \angle SGA, \angle TGA$

Inscribed Angle: An angle whose vertex is on the circle and whose sides pass through the endpoints of an arc.
Example(s): $\angle TAE, \angle ATE, \angle ETS$

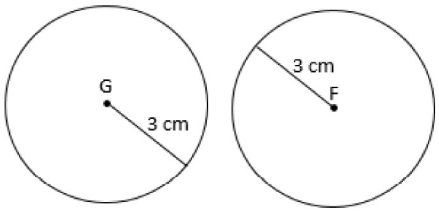
A few more definitions:

Circumscribed Polygon: A polygon that is located outside of a circle whose sides are tangents of the circle.
Example(s): Quad PLRB

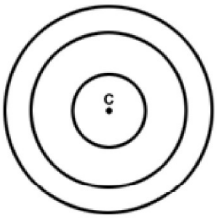
Inscribed Polygon: A polygon that is located inside of a circle and whose vertices are all on the circle.
Example(s): △TEA



Congruent Circles:
Circles which have the same radius length.

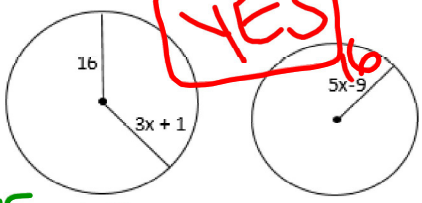


Concentric Circles:
Circles that share the same center.



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

1.



YES

$r = 16$

$3x + 1 = 16$

$-1 \quad -1$

$\frac{3x}{3} = \frac{15}{3}$

$x = 5$

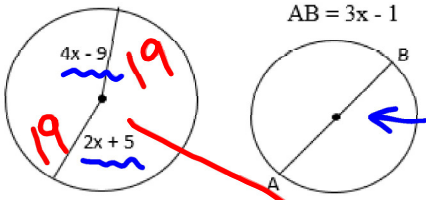
$5x - 9$

$5(5) - 9$

$25 - 9$

16

2.



NO

$4x - 9 = 2x + 5$

$-2x \quad -2x$

$2x - 9 = 5$

$+9 \quad +9$

$\frac{2x}{2} = \frac{14}{2}$

$x = 7$

$3x - 1$

$3(7) - 1$

$21 - 1$

20

$4x - 9$

$4(7) - 9$

$28 - 9$

19