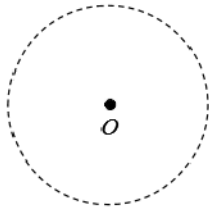Geometry CC – Mr. Valentino   Name: _____

Unit 12 Day 3: Circle Vocabulary   Date: _____   Per: _____

Aim: How can I define and understand the different circle vocabulary?

New Vocabulary: Circle, radius, diameter, chord, secant, tangent, major arc, minor arc, semicircle, central angle.
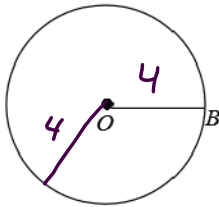
1) A ___circle___ is a set of points in a plane that are **equidistant** from a fixed point (the center).
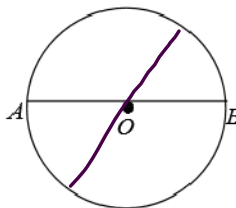
the same distance

A circle is usually named after its **center**. We usually use the letter O to represent the circle's center.

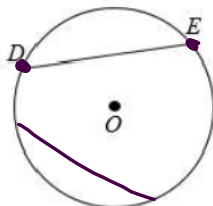2) Segment $\overline{OB}$ starts at the **center**, and ends at **a point on the circle**.

$\overline{OB}$ Is called a ___radius___.

plural → radii

3) Segment $\overline{AB}$ starts at **a point on the circle**, and ends at **another point on the circle**, and it **passes through the center**.
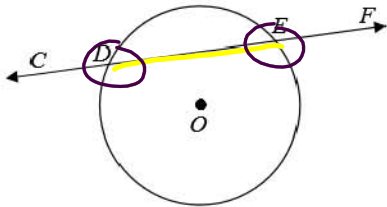
$\overline{AB}$ is called a ___diameter___.

$d = 2r$

4) Segment $\overline{DE}$ starts at **a point on the circle**, and ends at **another point on the circle**.
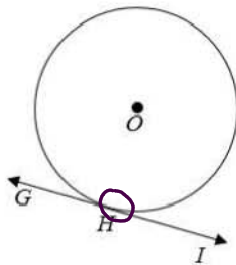
$\overline{DE}$ is called a ___chord___.

5) $\overline{CF}$ is the **whole line, or line segment** that **contains a chord** and intersects the circle twice.
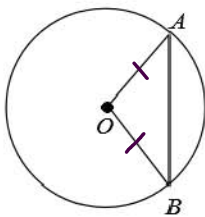
$\overline{CF}$ is called a ____Secant____.

6) $\overline{GI}$ is a line, or line segment that **intersects the circle at exactly one point**. It doesn't enter the circle.
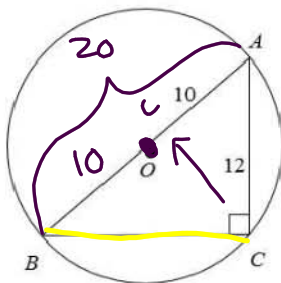
$\overline{GI}$ is called a ____tangent____.

- -

7) Is $\triangle AOB$ isosceles? Explain.

Since all radii in a circle
are $\cong$, $OA \cong OB$ and
an isosceles $\triangle$ has 2 $\cong$ sides.
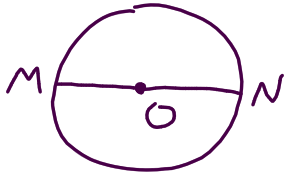
8) Find the length of $\overline{BC}$.

OA and
OB
are
radii

$$a^2 + b^2 = c^2$$
$$12^2 + b^2 = 20^2$$
$$144 + b^2 = 400$$
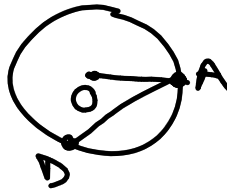$$\sqrt{b^2} = \sqrt{256}$$
$$b = 16$$

$$\boxed{BC = 16}$$
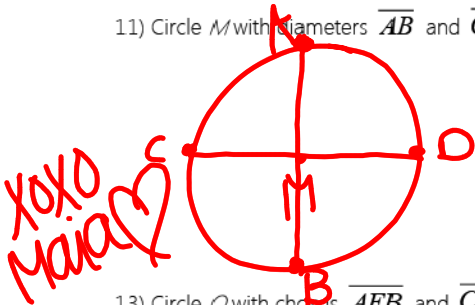
Sketch each of the following:

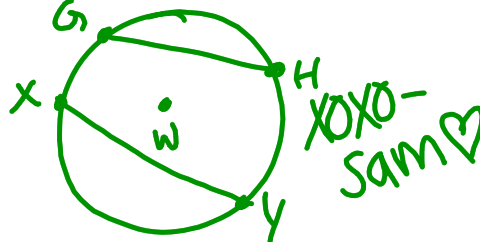9) Circle O with radius $\overline{OM}$, and diameter $\overline{NM}$

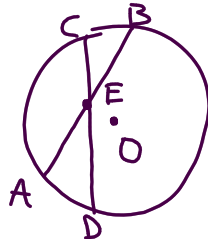10) Circle O with radius $\overline{OA}$, and chord $\overline{AD}$

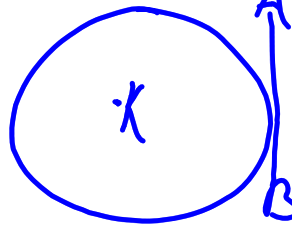11) Circle M with diameters $\overline{AB}$ and $\overline{CD}$

12) Circle W with chords $\overline{GH}$ and $\overline{XY}$
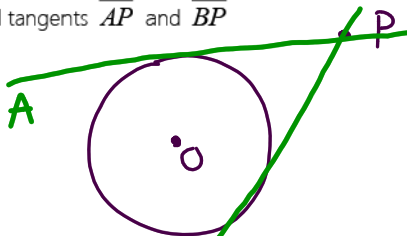
XOXO Maia

XOXO- Sam

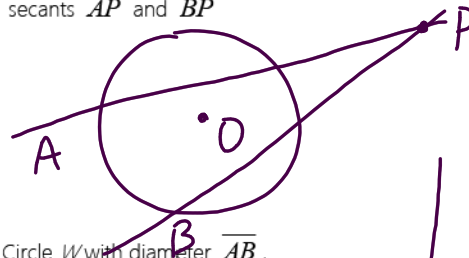13) Circle O with chords $\overline{AEB}$ and $\overline{CED}$
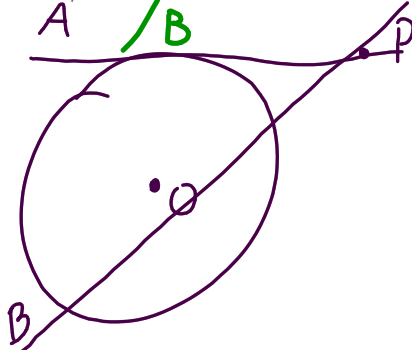
14) Circle K with tangent $\overline{AB}$

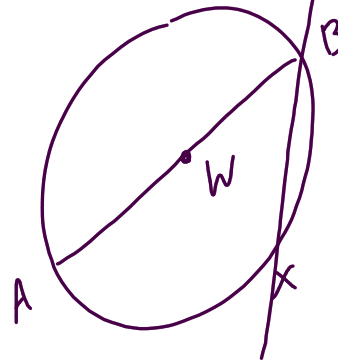15) Circle O with external point P, and tangents $\overline{AP}$ and $\overline{BP}$

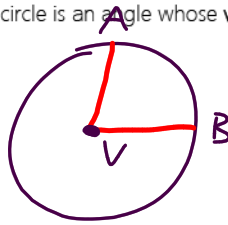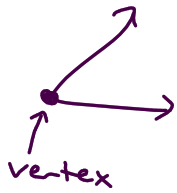16) Circle O with external point P, and secants $\overline{AP}$ and $\overline{BP}$

17) Circle O with external point P, tangent $\overline{AP}$, and secant $\overline{BP}$

18) Circle W with diameter $\overline{AB}$, and secant $\overline{BX}$

19) A _____Central_____ angle of a circle is an angle whose **vertex is the center of the circle**.

∡AVB is a central angle

vertex

20) The **measure of an arc** is equal to the **measure of the central angle** that <u>intercepts</u> the arc.

50°
50°
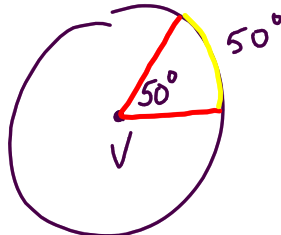
21) A _____minor_____ arc measures **less than 180 degrees**.

minor arc

30°
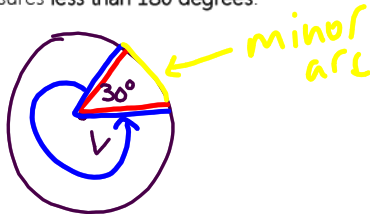
22) A _____major_____ arc measures **more than 180 degrees**. We usually name them with 3 letters.

Blue angle → 330°

minor arc

major arc

30

330°

23) Chords $\overline{AB}$ and $\overrightarrow{CD}$ intersect at O, the center of the circle, and $m\angle AOC = 25°$. Find each of the following:
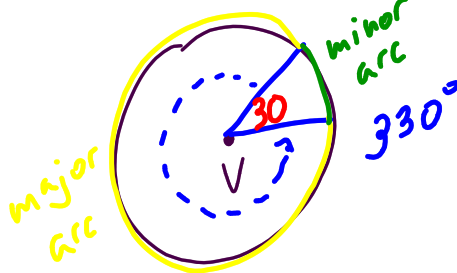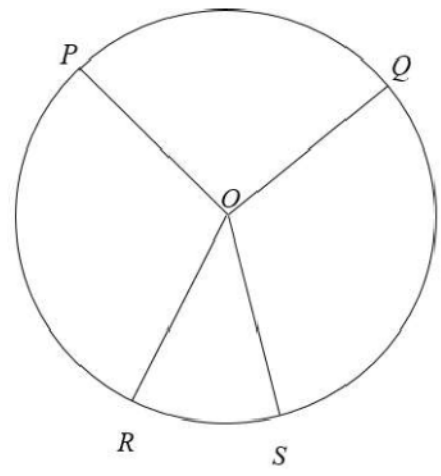
a] $m\angle COB$ f] $m\overset{\frown}{BD}$

b] $m\angle BOD$ g] $m\overset{\frown}{AB}$

c] $m\angle DOA$ h] $m\overset{\frown}{ACD}$

d] $m\overset{\frown}{AC}$ i] $m\overset{\frown}{CBA}$

e] $m\overset{\frown}{BC}$

360
total
degrees

25

25

A C
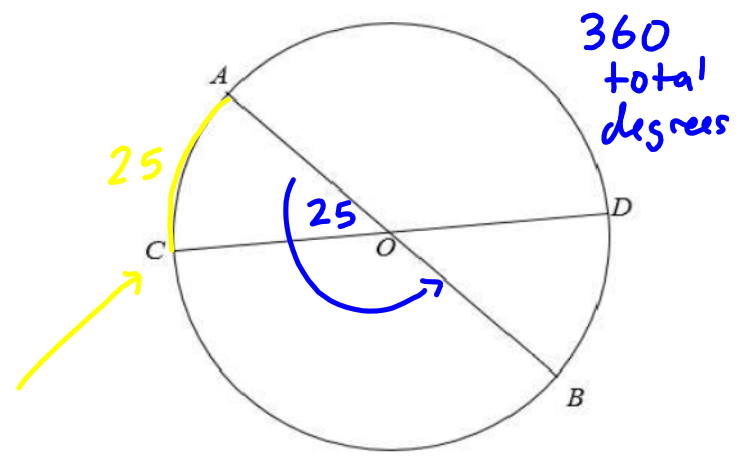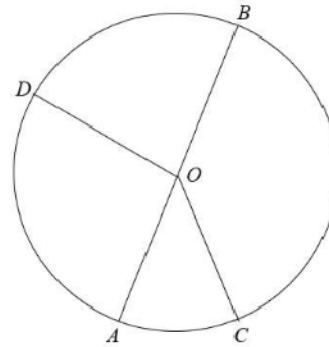
24) In circle O, $m\angle POQ = 100°$, $m\angle ROS = 40°$, and $\angle POR \cong \angle QOS$. Find each of the following:

a] $m\overset{\frown}{PQ}$ f] $m\overset{\frown}{QPS}$

b] $m\overset{\frown}{RS}$ g] $m\angle QOR$

c] $m\angle QOS$ h] $m\overset{\frown}{QR}$

d] $m\overset{\frown}{SQ}$ i] $m\overset{\frown}{QPR}$
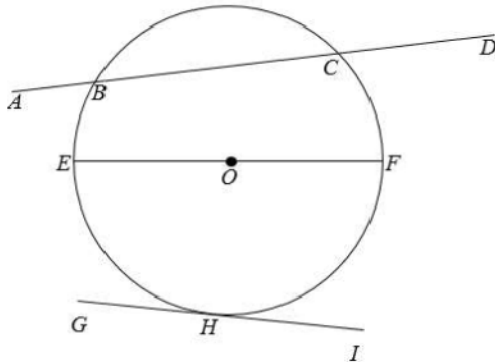
e] $m\overset{\frown}{RQ}$

25) In circle O, $\angle AOC$ and $\angle COB$ are supplementary. If $m\angle AOC = 2x$, $m\angle COB = x + 90$, and $m\angle AOD = 3x + 20$, find each of the following:

a] x

g] $m\overset{\frown}{BC}$

b] $m\angle AOC$

h] $m\overset{\frown}{AB}$

c] $m\angle COB$

i] $m\overset{\frown}{AD}$

d] $m\angle AOD$

j] $m\overset{\frown}{DB}$

e] $m\angle DOB$

k] $m\overset{\frown}{ADC}$

f] $m\overset{\frown}{AC}$

l] $m\overset{\frown}{BCD}$

26)

1) $\overline{EO}$ is called a _____.

2) $\overline{OF}$ is called a _____.

3) $\overline{EF}$ is called a _____.

4) $\overline{GI}$ is called a _____.

5) $\overline{BC}$ is called a _____.

6) $\overline{AD}$ is called a _____.

27) True or false: Every diameter is also a chord.

28) True or false: Every chord is also a diameter.