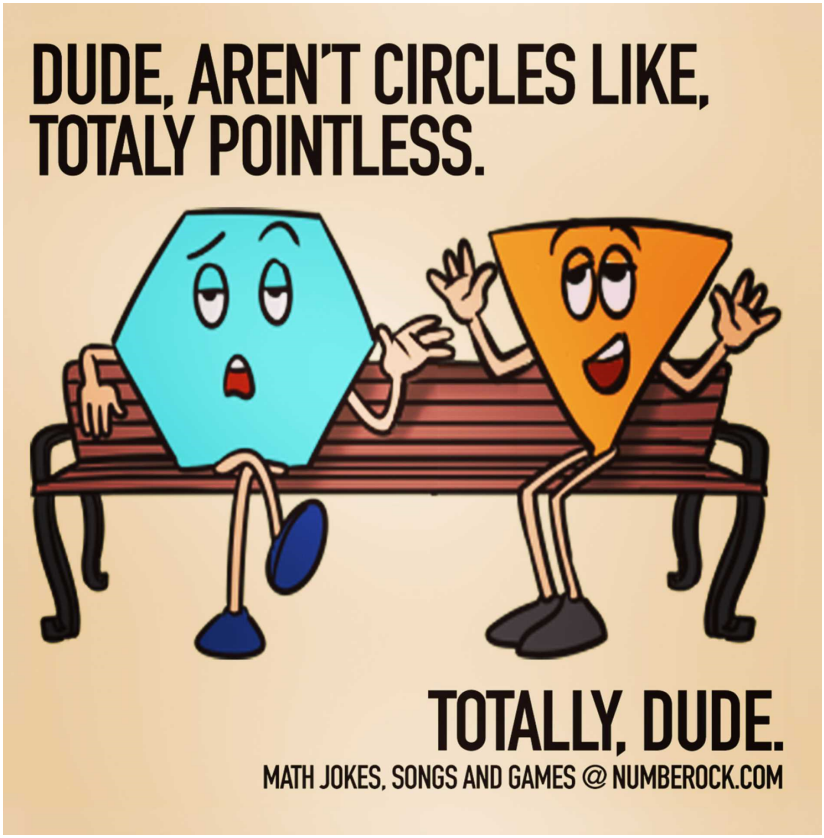
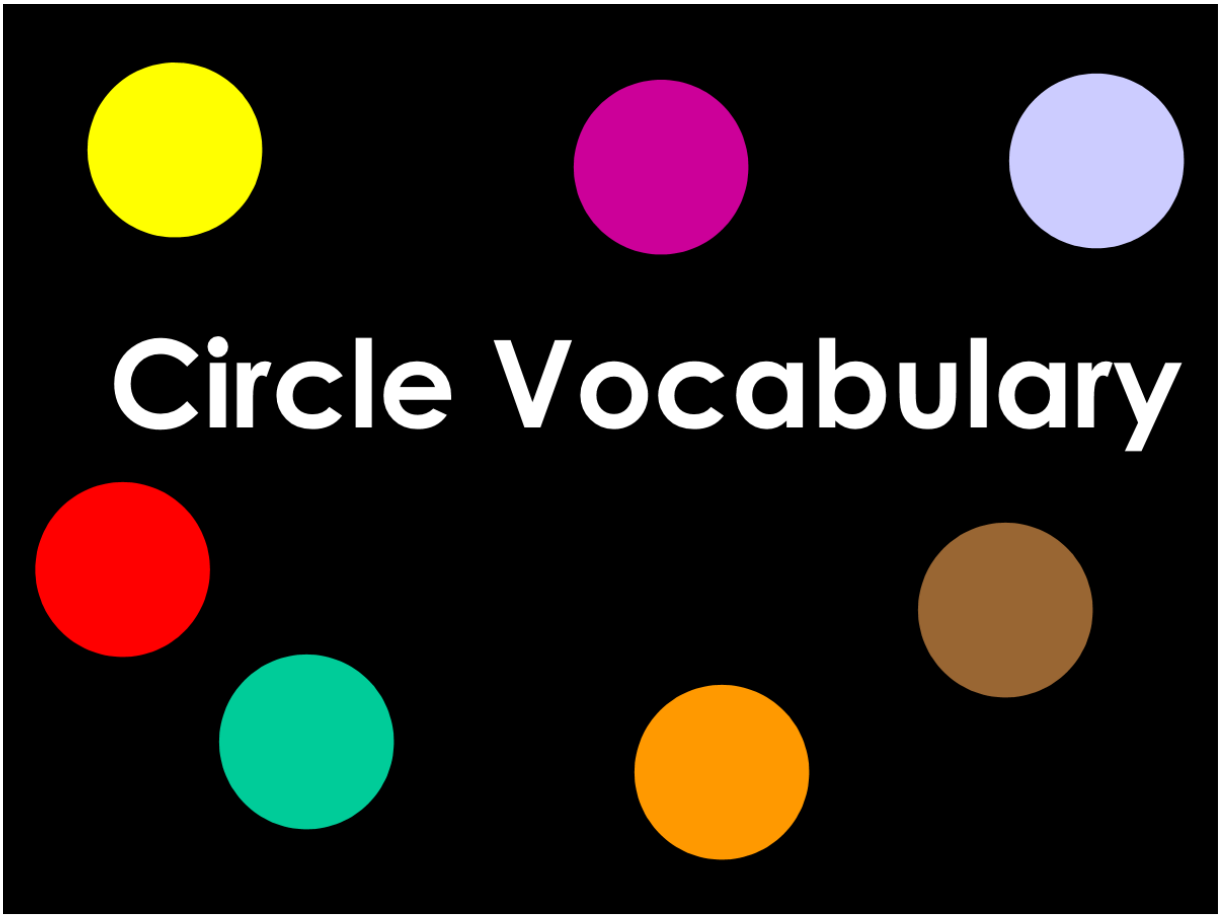
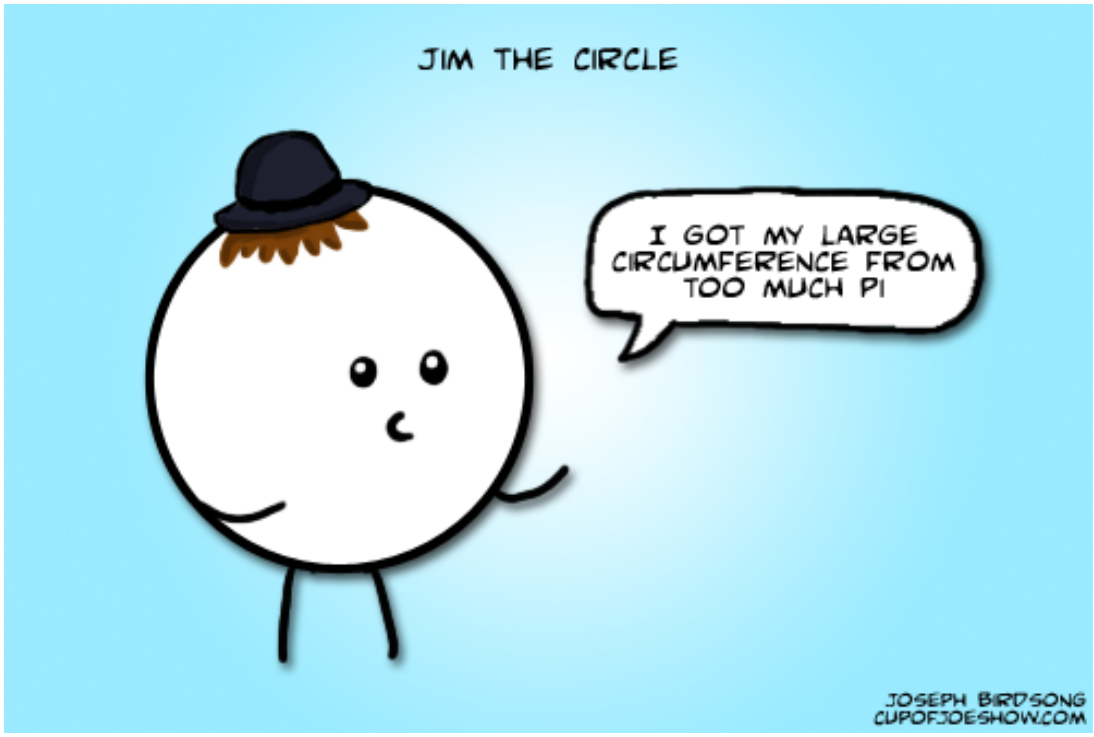

Good morning!
1. "Here"
2. Introduction to Circles
3. Practice Central Angles


DUDE, AREN'T CIRCLES LIKE, TOTALY POINTLESS.
TOTALLY, DUDE.
MATH JOKES, SONGS AND GAMES @ NUMBEROCK.COM


Circle Vocabulary


JIM THE CIRCLE
I GOT MY LARGE CIRCUMFERENCE FROM TOO MUCH PI
JOSEPH BIRDSONG
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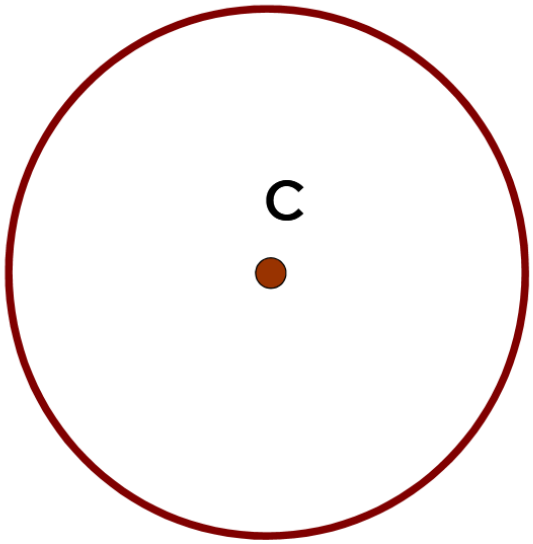
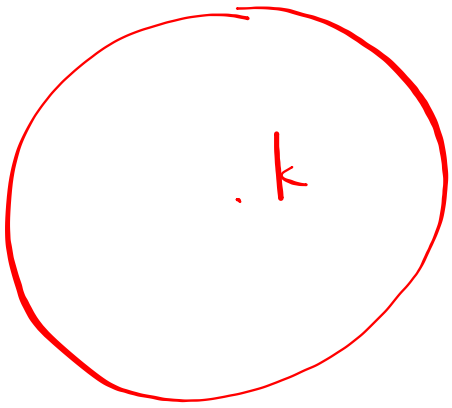


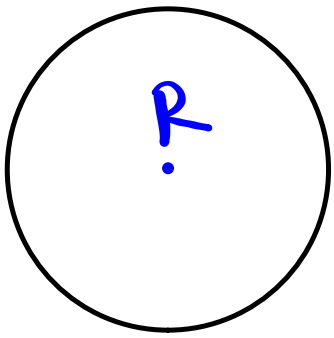
Circle – set of all points equidistant from a given point called the center of the circle.

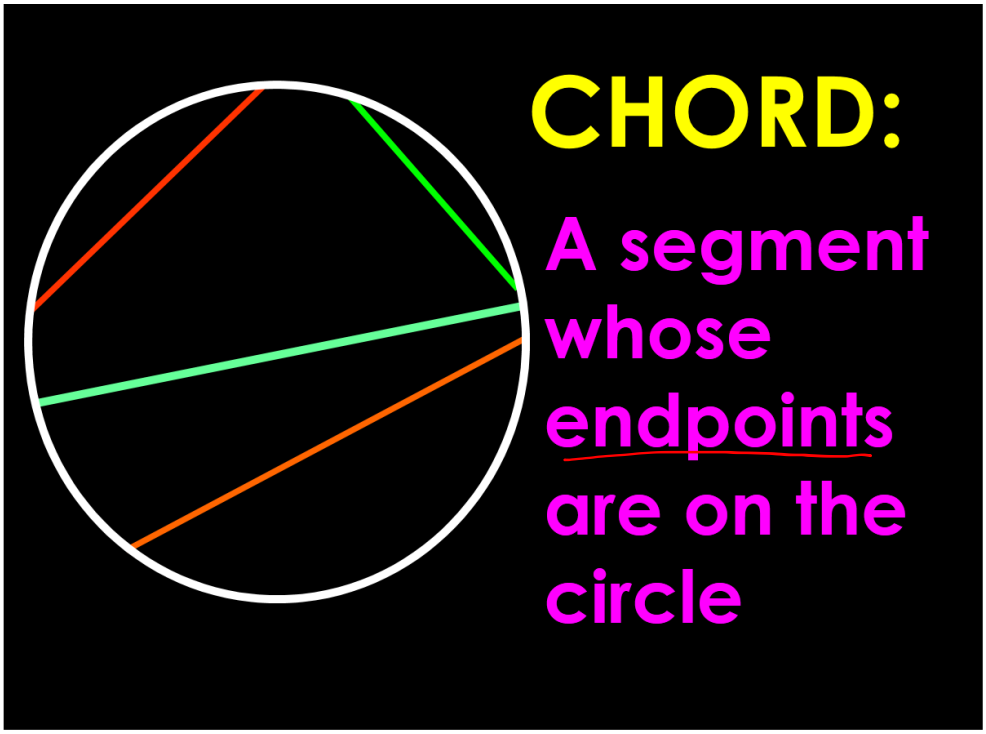
Symbol: $\odot C$



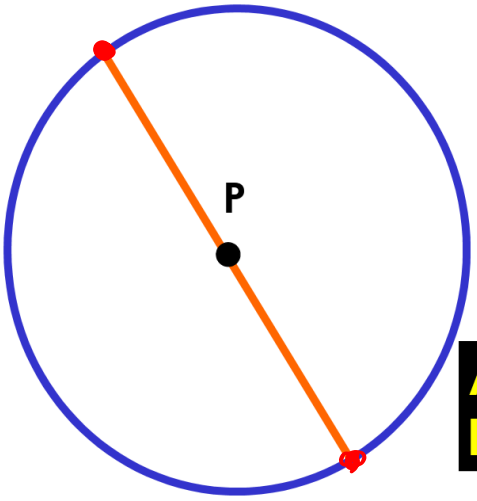
Circle k

⊙k


R


CHORD:
A segment whose endpoints are on the circle

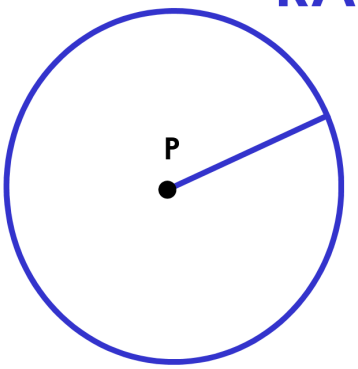
DIAMETER:



Distance across the circle through its center

Also known as the longest chord.

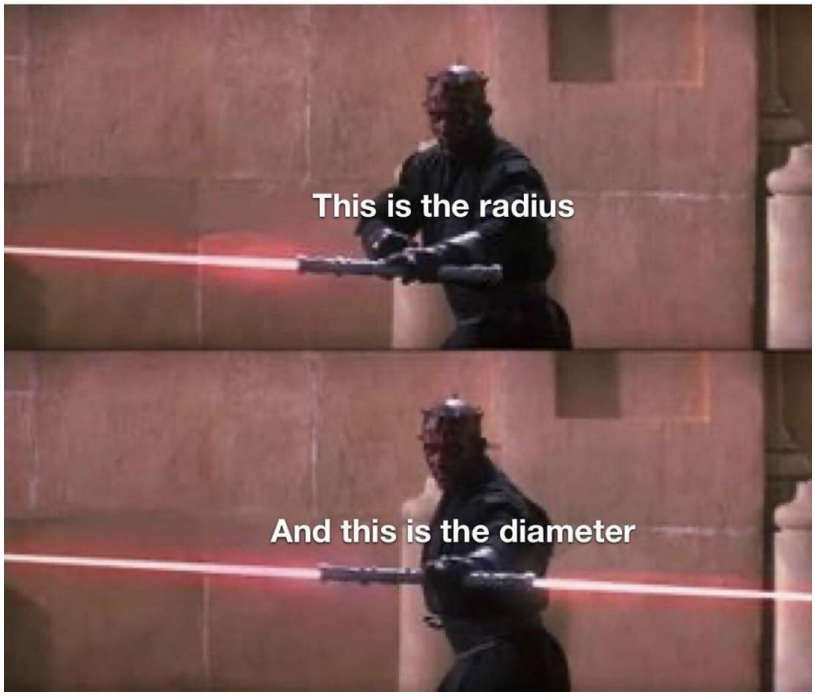
RADIUS:



Distance from the center to point on circle

Radius in same circle is congruent to every radius of that circle

math teachers trying to explain circles



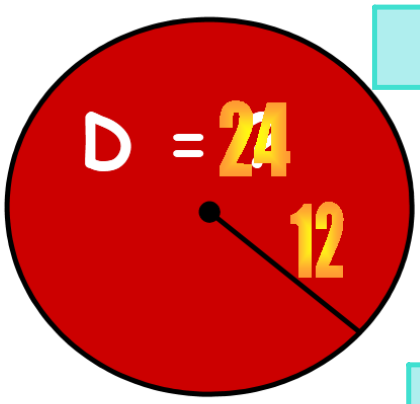
$2r = P$

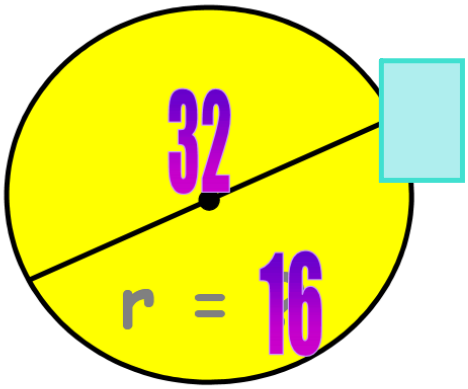
Formula

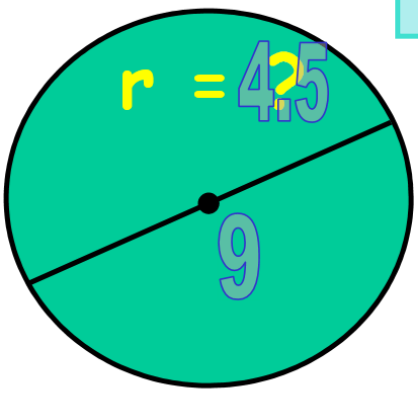
Radius = ½ diameter

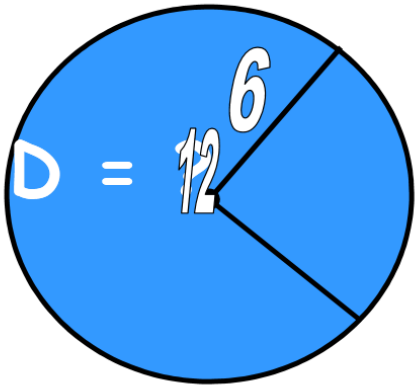
or

Diameter = 2r


D = 24
12


32
r = 16

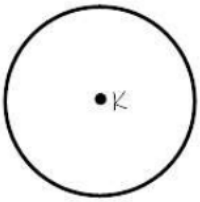

r = 15
9


6
D = 12

Circle Vocabulary and Central Angles: Notes

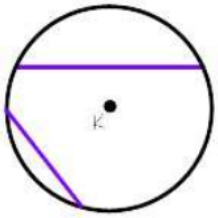
1. A _____ is the set of all points _____ from a given point, called the _____.

A _____ is named by its center point. The circle shown here would be called _____. Notation: _____

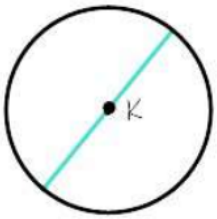


2. The _____ is the distance from the center point to any point on the circle. The _____ is a line segment and will have one endpoint at the _____ and the other endpoint on the _____ of the circle. Every _____ in the same circle will have the same length.

3. A _____ is any line segment that has it's _____ on the circumference of the circle.



4. A _____ is a special type of chord that passes through the _____ of the circle. It is the _____ across the circle, and will always be the _____ chord in a circle.

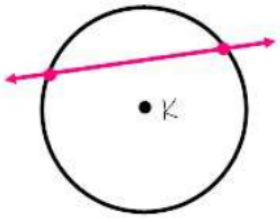


Special relationships: The radius will always be _____ the length of the diameter.

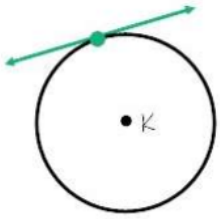
The diameter will always be _____ the length of the radius.

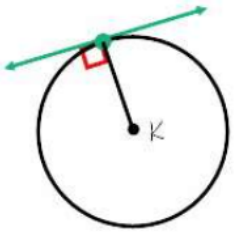
Formulas:

5. A _____ line intersects the circle at two points.



6. A _____ line intersects the circle at exactly one point. This point is called the point of _____. If you draw a radius from the point of _____, a right angle is always formed at their intersection.



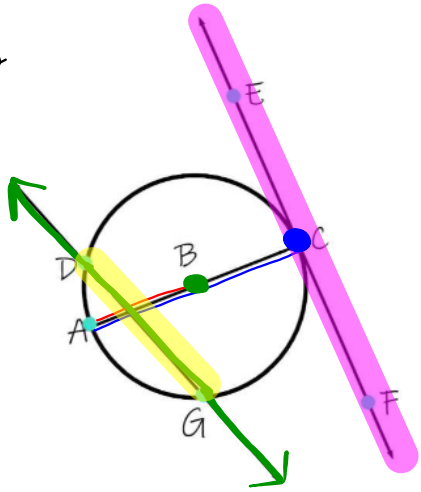


7. **You Try:** Using our new vocabulary words, decide which word best describes the requested line or segment:

a. $\overline{AB}$ radius b. $\overline{AC}$ diameter c. $\overline{DG}$ chord

d. $\overleftrightarrow{DG}$ secant line e. $\overleftrightarrow{EF}$ tangent line

f. C point of tangency g. B center of circle



h. If $\overline{AB} = 7$, then $\overline{AC} =$ 14.

i. $\overline{AC}$ and $\overline{EF}$ meet to form a right angle.

Use ⊙P to determine whether each statement is *true* or *false*.

Fake

1. $\overline{RT}$ is a ~~diameter~~. chord

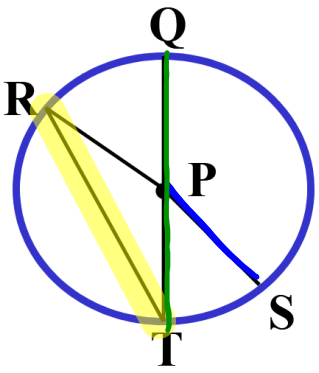
True

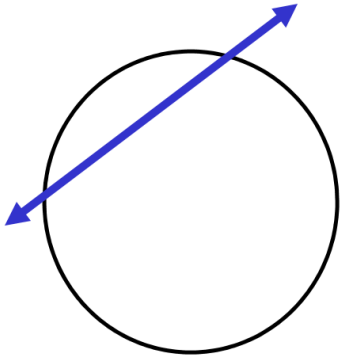
2. $\overline{PS}$ is a radius.

True

3. $\overline{QT}$ is a chord.

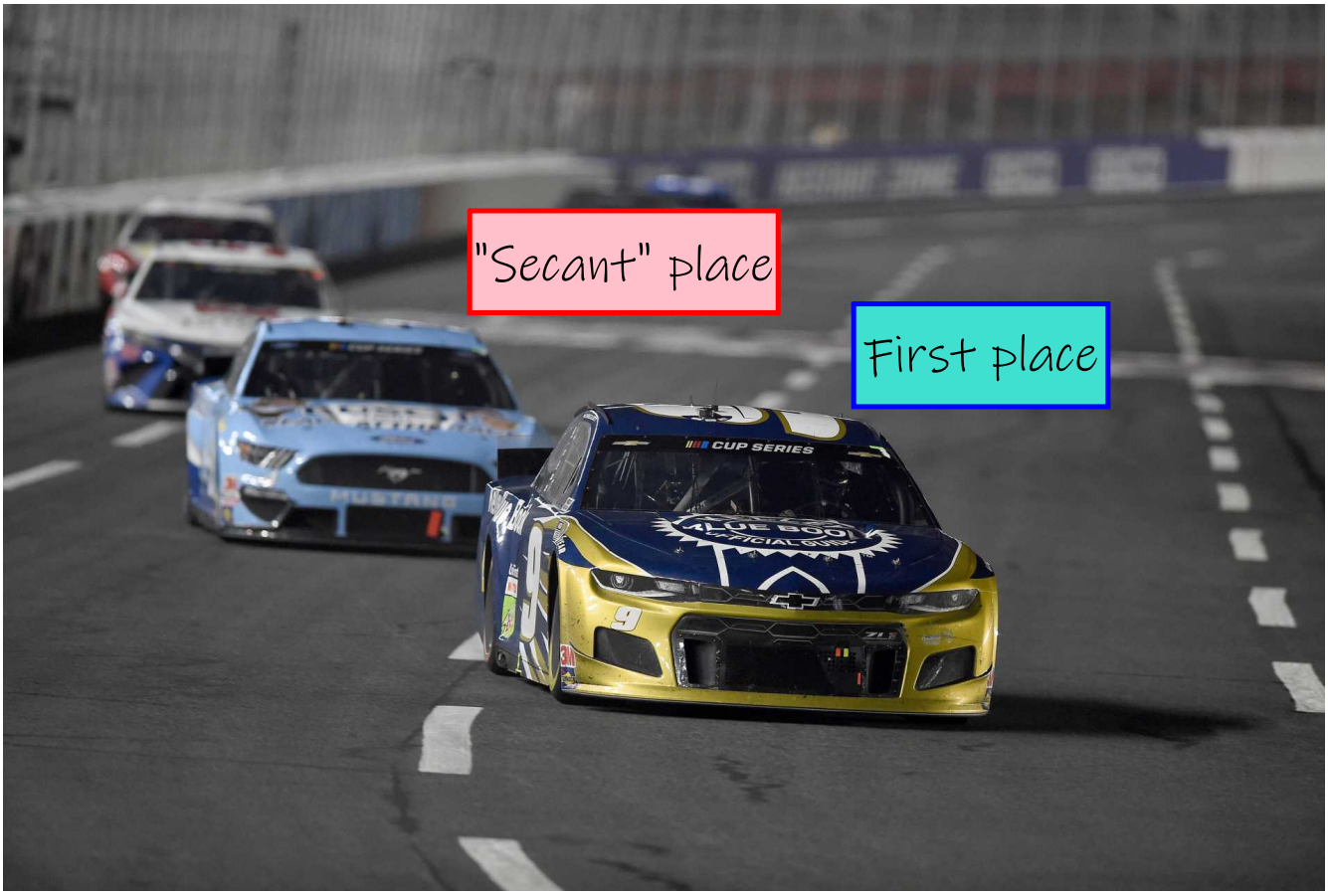
Diameter is longest Chord





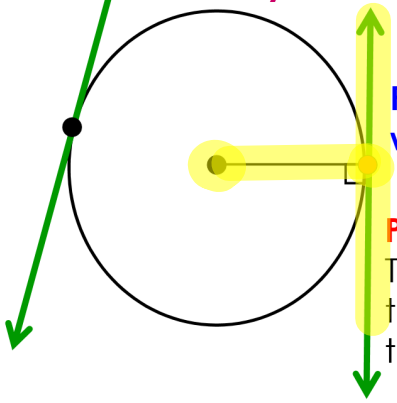
Secant Line:

intersects the circle at exactly TWO points


"Secant" place
First place
CUP SERIES

Tangent Line:

a LINE that intersects the circle exactly ONE time



Forms a 90°angle with one radius

Point of Tangency:
The point where the tangent intersects the circle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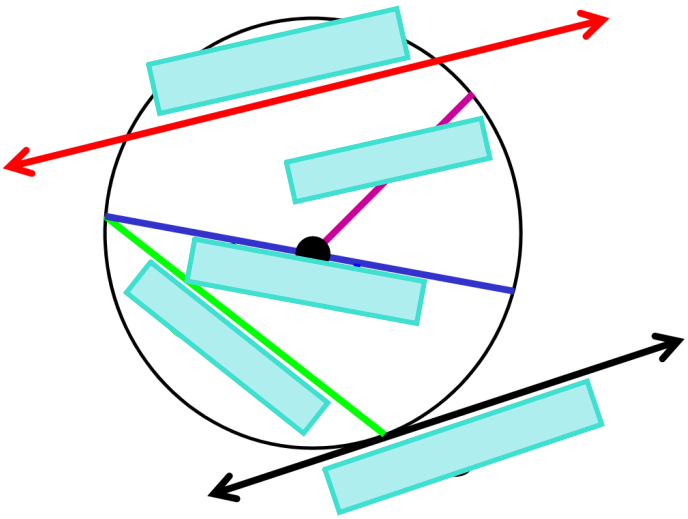
Name the term that best describes the notation.



360° in a circle

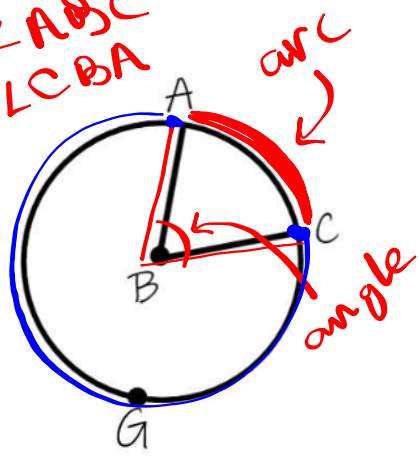
Central Angles

An angle whose vertex is at the **center** of the circle

8. **Recall:** How many degrees are in a circle? _____.

9. A _____ angle is an angle with it's vertex at the _____ point of the circle. ∠_____ is a central angle. **A central angle will always be equal to its arc!**

∠B
∠ABC
∠CBA



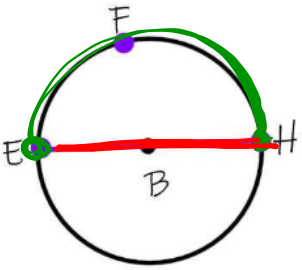
10. A minor arc is an arc with a measure that is less than 180°.

$\overset{\frown}{AC}$ is a minor arc. You use 2 letters to name a minor arc.

11. A major arc is an arc with a measure that is greater than 180°.

$\overset{\frown}{AGC}$ is a major arc. You must use 3 letters to name a major arc.

12. A semicircle is an arc that is exactly 180°. A semicircle is half a circle.



$\overset{\frown}{EFH}$ is a semicircle.

13. Important things to look for when dealing with angles and arcs in circles:

Vertical angles are always congruent. Linear Pairs are always Supplementary. All the arcs of a circle will add up to be 360°. The arcs that form a semicircle will add up to be 180°.

14. You try!

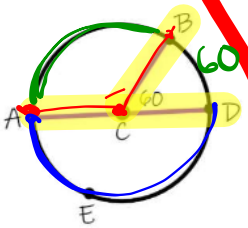
C is the center point. $\overline{AD}$ is a diameter.

a. $m\overset{\frown}{AB}$ = 120°

b. $m\overset{\frown}{BD}$ = 60°

c. $m\angle ACB$ = 120°

d. $m\overset{\frown}{AED}$ = 180°



F is the center point. $\overline{GI}$ and $\overline{JH}$ are diameters.

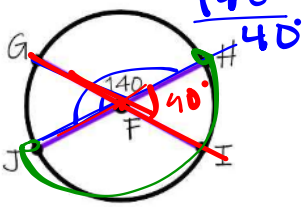
e. $m\angle GFJ$ = 40°

f. $m\overset{\frown}{GH}$ = 140°

g. $m\overset{\frown}{HI}$ = 40°

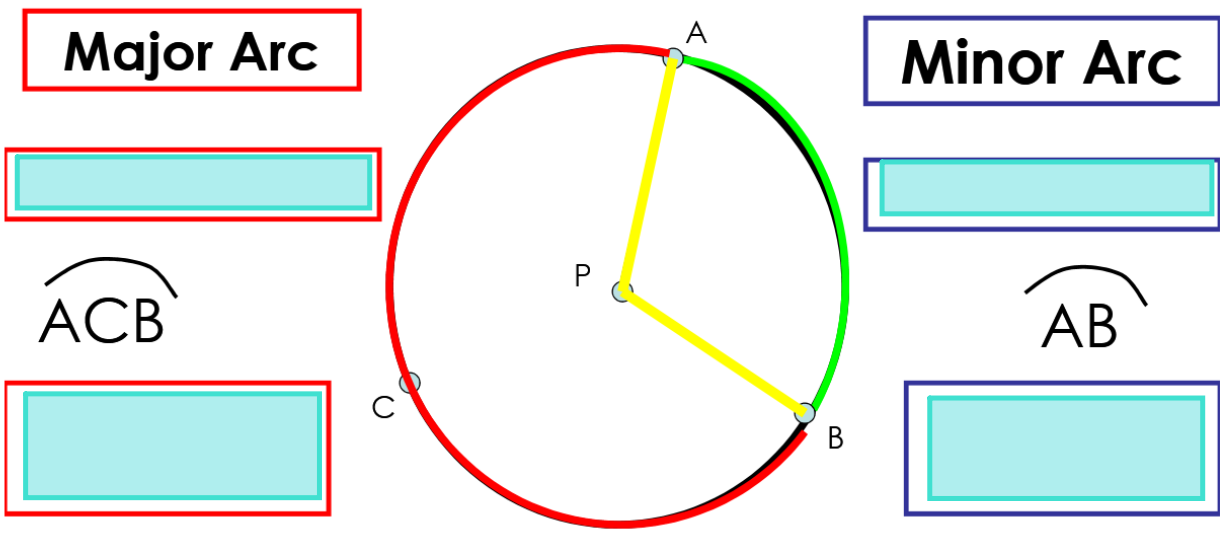
h. $m\overset{\frown}{JIH}$ = 180°

180 − 140 = 40°



3 Types of Arcs

Major Arc



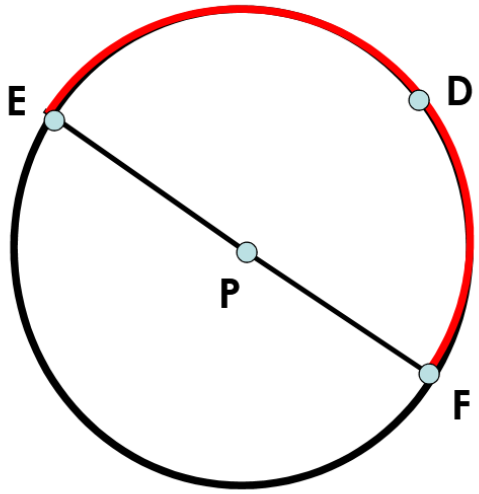
Minor Arc

$\overset{\frown}{ACB}$

$\overset{\frown}{AB}$

$\angle APB$ is a Central Angle

Semicircle: An Arc that equals 180°



THINGS TO KNOW AND REMEMBER ALWAYS

A circle has 360 degrees

A semicircle has 180 degrees

Vertical Angles are CONGRUENT

Linear Pairs are SUPPLEMENTARY

Formula

measure Arc = *measure* Central Angle

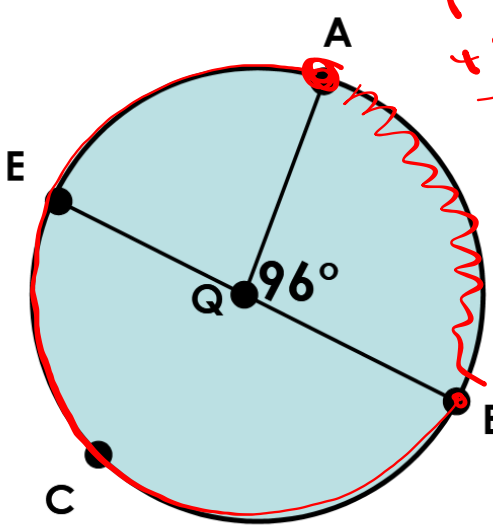
Find the measures.

EB is a diamet

$m\overset{\frown}{AB} =$ 96°

$m\overset{\frown}{ACB} =$ 264°

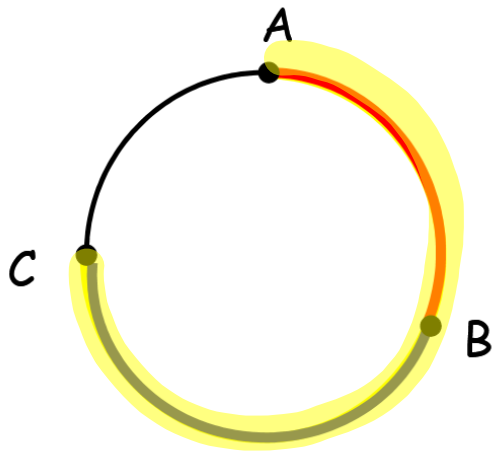
$m\overset{\frown}{AE} =$ 84°



96
+ 84
+180
264

360
− 96
264

Arc Addition Postulate



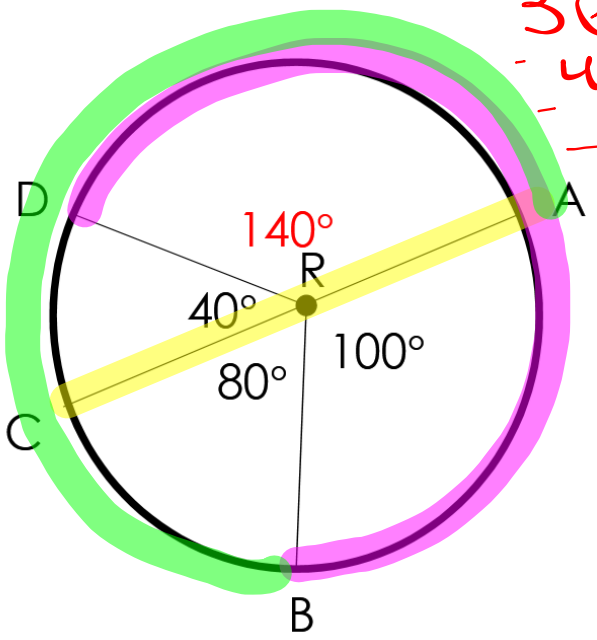
$m\overset{\frown}{ABC} = m\overset{\frown}{AB} + m\overset{\frown}{BC}$

Tell me the measure of the following arcs.

AC is a diameter.

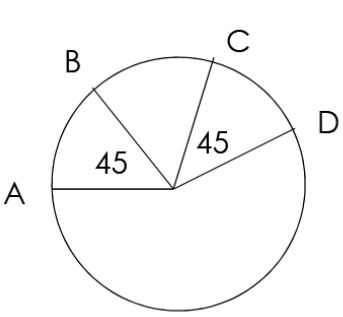
$m\overset{\frown}{DAB} = \mathbf{240°}$

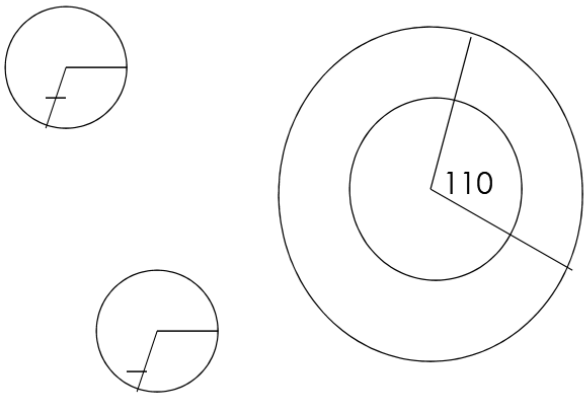
$m\overset{\frown}{BCA} = \mathbf{260°}$



360
- 40
- 80
240.

Congruent Arcs have the same measure and MUST come from the same circle or of congruent circles.





Arc length is proportional to "r"

Geometry Circle Angles and Arcs Practice

Name: _____ Date: _____

Central Angles Practice

1. Identify and name each of the following from ⊙O. Be sure to use the correct notation. BD is a diameter.

∠BOC
∠AOD

_____ a. Two different central angles
_____

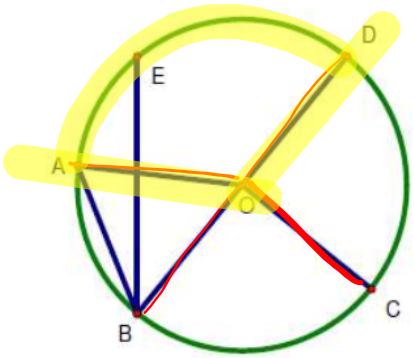
_____ b. A minor arc

_____ c. A major arc

_____ d. A semicircle

_____ e. Two different chords
_____

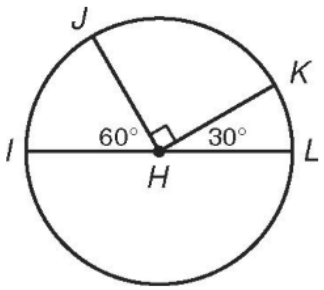
_____ f. The central angle the creates $\overset{\frown}{AD}$



Find each measure.

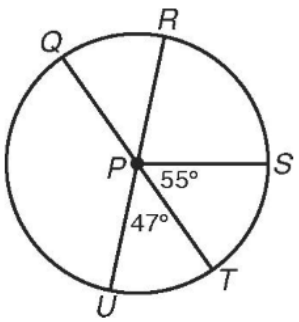
IL is a diameter.

2. mLK _____, mIK _____



RU & QT are diameters.

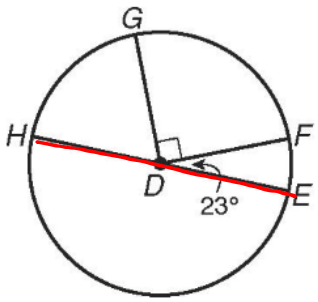
3. mQS _____, $m\,RQT$ _____



Geometry Circle Angles and Arcs Practice

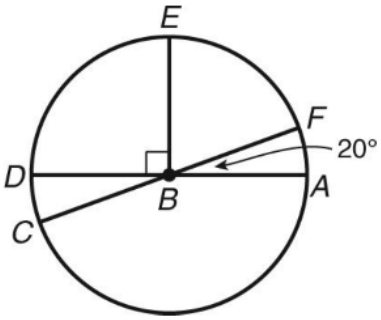
HE is a diameter

4. mHG _____, $mFEH$ _____



DA and FC are diameters.

5. mEF _____, $m\,CEA$ _____



$4x+25$

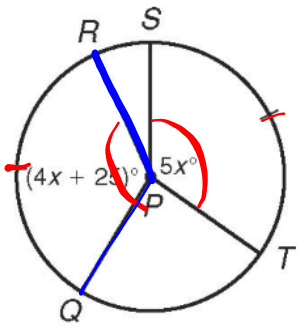
$4(25)+25$

6. $\angle QPR$ 125°

$4x+25 = 5x$

$-4x \quad -4x$

$25 = x$



UX is a diameter. (180°)

7. $\angle UTW$ 102°, $\overset{\frown}{mUV}$ 82°

180

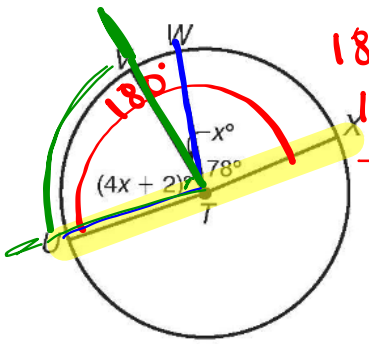
-78

$102°$

$4x+2$

$4(20)+2$

82



$180 = (4x+2)+x+78$

$180 = 5x+80$

$-80 \quad -80$

$\frac{100}{5} = \frac{5x}{5}$

$x = 20$