Math 3 Unit 5 Name _____

Day 1 Notes: Angles

Circle- All points equidistant from a given point called the center
Circle Y or ⊙Y

Radius- a segment from the center to a point on the circle
$\overline{YM}$, $\overline{YC}$, $\overline{YA}$

Diameter- a segment that contains the center and endpoints on the circle
$\overline{MC}$

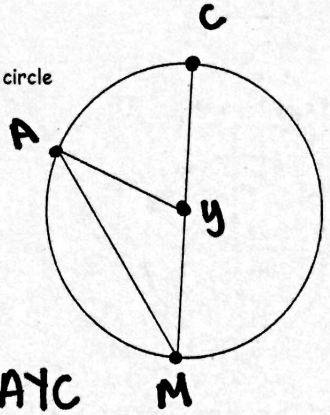
Semicircle- half a circle (180 degrees)
$\overset{\frown}{CAM}$
*3 points

Arc- part of a circles circumference
$\overset{\frown}{AC}$

Minor Arc- arc that measures less than 180 degrees
$\overset{\frown}{MA}$

Major Arc- arc that measures greater than 180 degrees
$\overset{\frown}{CMA}$
*3 points

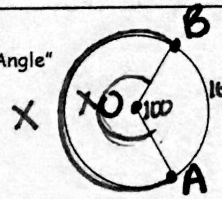
Central Angle- Angle whose vertex is the center of the circle
∠AYC



Circumference: $C = \pi d$ or $C = 2\pi r$

Area of a Circle: $A = \pi r^2$

Arc Measure- "Central Angle"



$m\angle BOA = m\overset{\frown}{AB}$

$m\overset{\frown}{X} = 260°$

Arc Length- the distance between two points on a circle

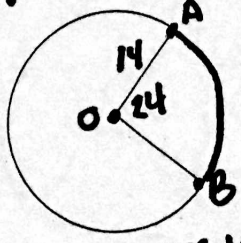
In Degrees:

$\frac{measure\ of\ central\ angle}{360} * (2\pi r)$

In Radians:

$\frac{measure\ of\ central\ angle}{2\pi} * (2\pi r)$

circumference



arc length

(ex) $\frac{24}{360}(2 \cdot \pi \cdot 14) = 5.86$ cm

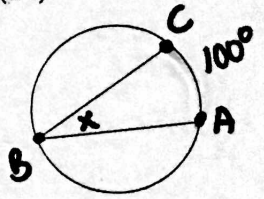
arc measure : 24°

Area of a sector:

$A = \frac{x}{360}(\pi r^2)$

Angles in Circles:

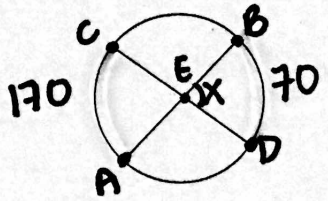
ON the Circle: = ½ (arc)



$m\angle ABC = \frac{1}{2}(100°)$

$x = 50°$

IN the Circle = ½ (sum of arcs)



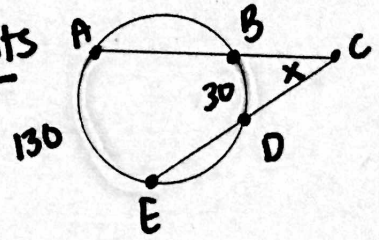
$m\angle BED = \frac{1}{2}(\overset{\frown}{AC} + \overset{\frown}{BD})$

$x = \frac{1}{2}(170+70)$

$x = 120°$

OUTSIDE the circle = ½ (difference of arcs)

Two secants

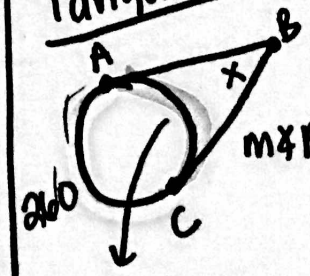


$m\angle ACE = \frac{1}{2}(\overset{\frown}{AE} - \overset{\frown}{BD})$

$x = \frac{1}{2}(130-30)$

$x = 50°$

Two Tangents



major minor

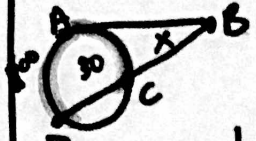
$m\angle ABC = \frac{1}{2}(\overset{\frown}{AC} - \overset{\frown}{AC})$

$x = \frac{1}{2}(260-100)$

$x = 80°$

260-260=100

A Tangent + Secant



$m\angle ABD = \frac{1}{2}(100-30)$

$x = 35°$