Today we started class by going over the homework assignment and ensuring understanding of yesterday's lesson. After, students completed time practice on the following sheet to see how much they remembered from yesterdays content. (This is the first sheet below) We then took notes on inscribed angles and their intercepted arcs. After this students completed practice work on this topic and we reviewed the answers. The homework assignment is the third page in the packet handed out in class today.

Central Angles Practice

1. Identify and name each of the following. Be sure to use the correct notation.

a. Two different central angles ∠AOD, ∠BOC, ∠DOC

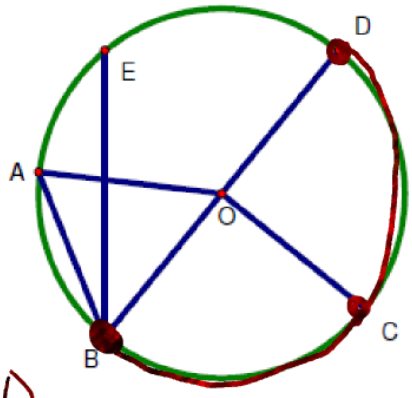
b. A minor arc $\overset{\frown}{AE}$, $\overset{\frown}{DC}$, $\overset{\frown}{BC}$, $\overset{\frown}{AB}$

c. A major arc $\overset{\frown}{ABE}$, $\overset{\frown}{BAC}$, $\overset{\frown}{ADC}$

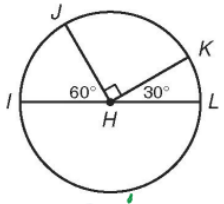
d. A semicircle $\overset{\frown}{DCB}$ $\overset{\frown}{BAD}$

e. Two different chords $\overline{BE}$ $\overline{BA}$ $\overline{BD}$

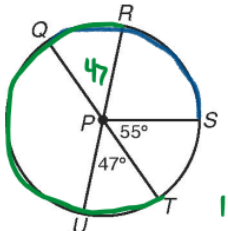
f. The central angle subtended by AD formed by ∠AOD



Find each measure.

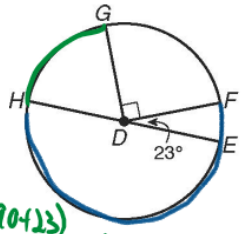


2. mLK 30°, mIK 150°



180-55 180+47

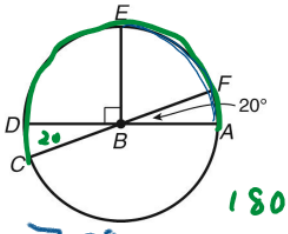
3. mQS 125°, $m\,RQT$ 227°



180+23

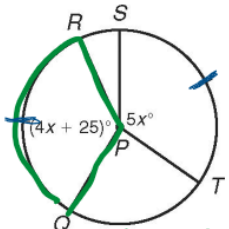
180-(90+23)

4. mHG 67°, $mFEH$ 203°



90-20 180+20=200

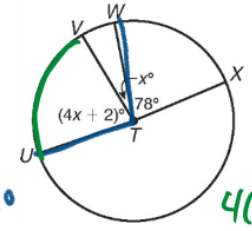
5. mEF 70°, $m\,CEA$ 200°



6. $\angle QPR$ 125°

4x+25=5x 5(25)=125°

25=x



4(20)+2+20 4(20)+2=

7. $\angle UTW$ 102°, mUV 82

4x+2+x+78=180

5x+80=180

5x=100

x=20

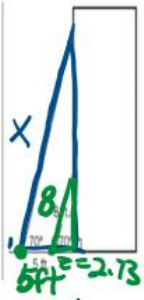
56.

This diagram shows two ladders leaning against a building. Each ladder is leaning at an angle of 70 degrees.
- The length of the short ladder is 8 feet.
- The base of the long ladder is 5 feet farther from the base of the building than the base of the short ladder is.

What is the length, to the nearest foot, of the long ladder?

A 10 ft.
B 13 ft.
C 24 ft.
D 26 ft.

$\sin 70° \approx 0.9397$
$\cos 70° \approx 0.3420$
$\tan 70° \approx 2.7475$



$\frac{8}{x} = \frac{2.73}{1}$

$x = 7.73$

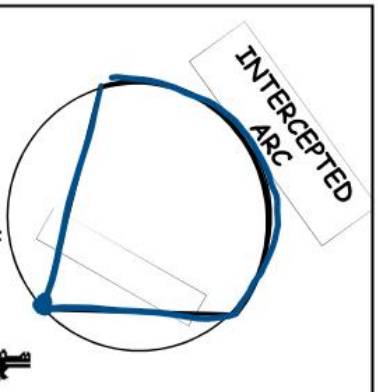
$\cos(70) = \frac{z}{8}$ — y-1

$z = 8\cos(70)$

2.73

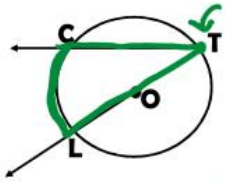
inscribed :

An angle whose **vertex** is on the circle and whose **sides are chords** of the circle



Determine whether each angle is an inscribed angle. Name the intercepted arc for the angle.

1.



Vertex

Inscribed angle

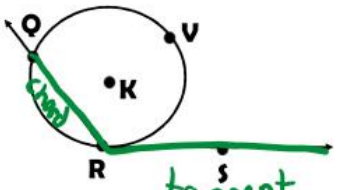
$\angle LTC$

Intercepted arc

$\overset{\frown}{LC}$

Determine whether each angle is an inscribed angle. Name the intercepted arc for the angle.

2.

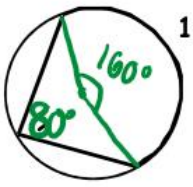


chord

tangent

To find the measure of an inscribed angle...

2*Angle = Arc



arc

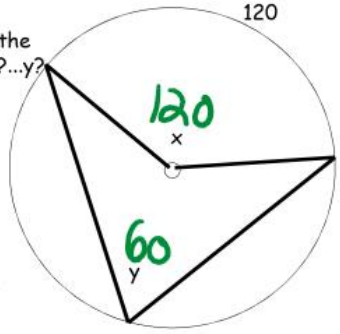
$2\angle = 160$

$\angle = 80°$

What do we call this type of angle?

The measure of the intercepted arc is twice the measure of the inscribed angle!!

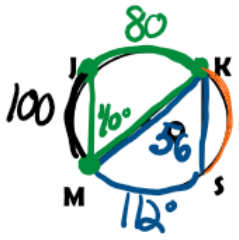
What is the value of x?...y?



Examples

3. If $m\overset{\frown}{JK} = 80°$, find $m\angle JMK$.

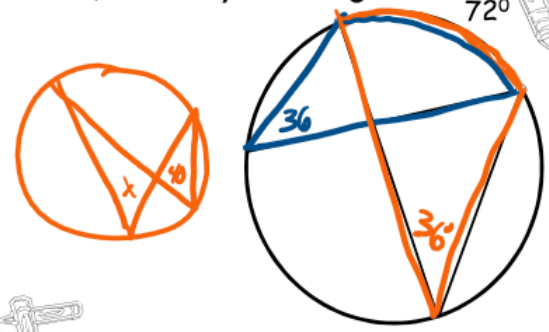
4. If $m\angle MKS = 56°$, find $m\overset{\frown}{MS}$.



$m\overset{\frown}{KS}$

$180 - 112 = 68°$

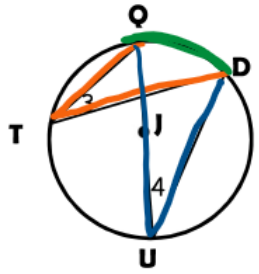
If two inscribed angles intercept the same arc, then they are congruent.



Example 5 They form same arc so they are equal.

In ⊙J, $m\angle 3 = 5x$ and $m\angle 4 = 2x + 9$.

Find the value of x.

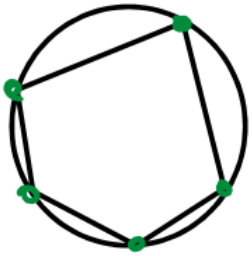


$5x = 2x + 9$

$3x = 9$

$x = 3$

If all the vertices of a polygon touch the edge of the circle, the polygon is INSCRIBED and the circle is CIRCUMSCRIBED.



A circle can be circumscribed around a quadrilateral if and only if its opposite angles are supplementary.

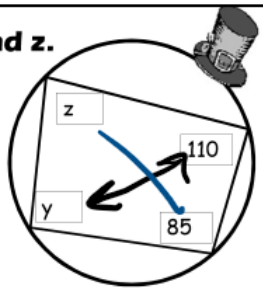
$\overset{\frown}{ADC} + \overset{\frown}{ABC} = 360$

$\angle ABC + \angle ADC = 180$

$m\angle A + m\angle C = 180$

$m\angle B + m\angle D = 180$

Example 8 Find y and z.



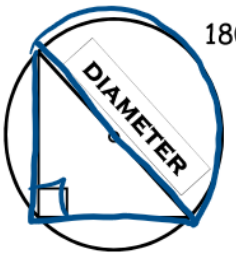
$110 + y = 180$

$y = 70$

$z + 85 = 180$

$z = 95°$

If a right triangle is inscribed in a circle then the *hypotenuse* is the diameter of the circle.



180°

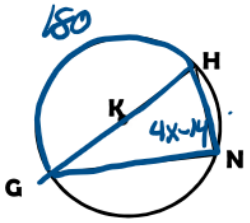
180

Example 6

In ⊙K, $\overline{m}$<GNH = 4x – 14. Find the value of x.

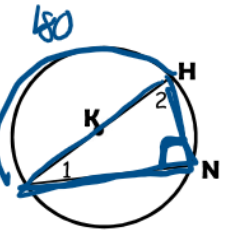
$4x-14=90$

$x=26$



Example 7

In ⊙K, $m\angle 1 = 6x - 5$ and $m\angle 2 = 3x - 4$. Find the value of x.



$6x-5+3x-4=90$

$x=11$

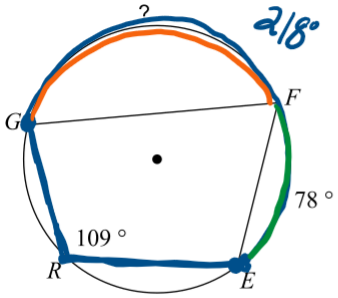
$180 - 90$

$1+2=90$

Find the measure of the arc or angle indicated.

6)

$218-78=140°$

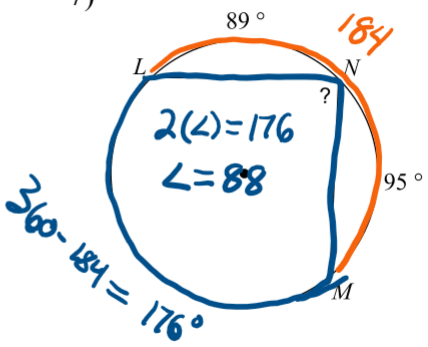


$2(\angle)=arc$

$2(109)=arc$

$218=arc$

7)



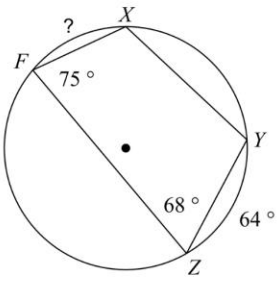
$2(\angle)=176$

$\angle=88$

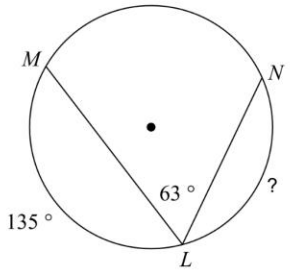
$360-184=176°$

This is the homework page.

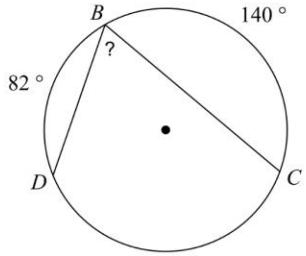
8)



9)

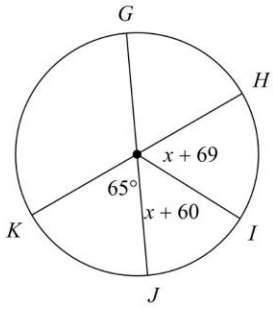


10)

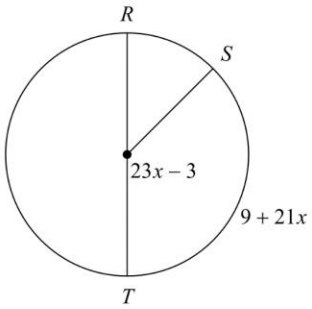


Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

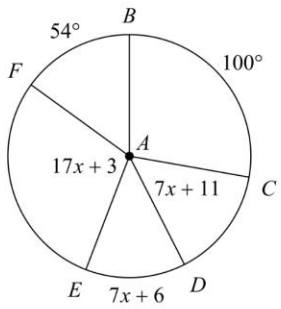
11) $m\widehat{HJ}$



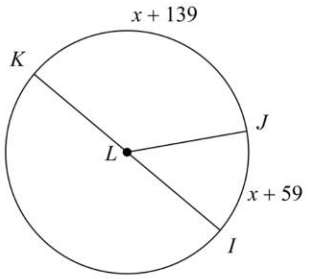
12) $m\widehat{ST}$



13) $m\angle EAF$



14) $m\angle JLI$



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