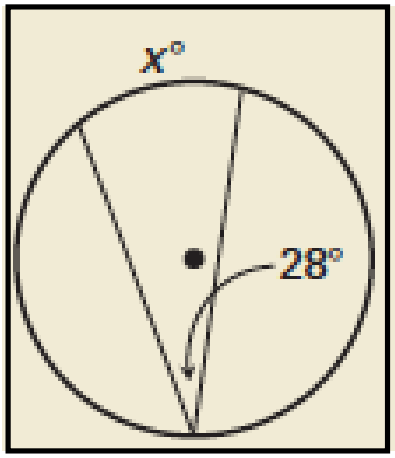
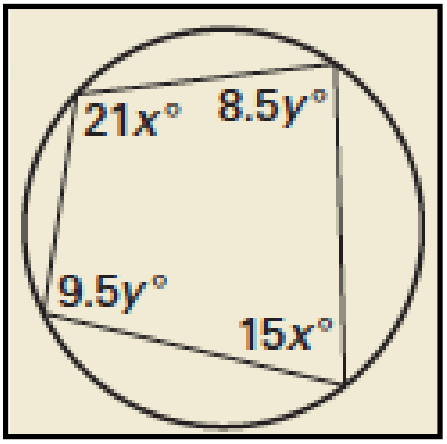
Bellwork
03/22/2012

Find the value of x.

1. 

$28 \cdot 2$

$x = 56°$

2. 

$21x + 15x = 180$

$36x = 180$

$x = 5$

$9.5y + 8.5y = 180$

$18y = 180$

$y = 10$

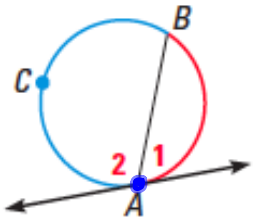
Geometry
10.5 Other Angle Relationships in Circles
Standard(s): 4, 6

Vocabulary:

THEOREM *For Your Notebook*

THEOREM 10.11 Angles On the Circle Theorem

If a tangent and a chord intersect at a point on a circle, then the measure of each angle formed is one half the measure of its intercepted arc.



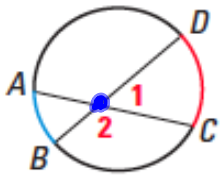
Proof: Ex. 27, p. 685

$m\angle 1 = \frac{1}{2}m\overset{\frown}{AB}$ $m\angle 2 = \frac{1}{2}m\overset{\frown}{BCA}$

THEOREMS *For Your Notebook*

THEOREM 10.12 Angles Inside the Circle Theorem

If two chords intersect *inside* a circle, then the measure of each angle is one half the *sum* of the measures of the arcs intercepted by the angle and its vertical angle.



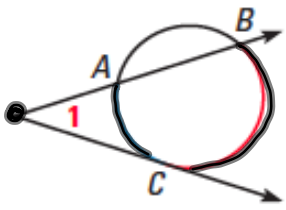
$m\angle 1 = \frac{1}{2}(m\overset{\frown}{DC} + m\overset{\frown}{AB})$,

$m\angle 2 = \frac{1}{2}(m\overset{\frown}{AD} + m\overset{\frown}{BC})$

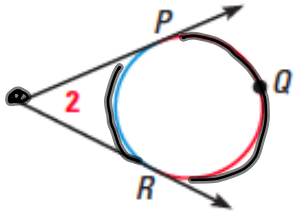
Proof: Ex. 28, p. 685

THEOREM 10.13 Angles Outside the Circle Theorem

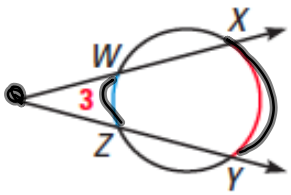
If a tangent and a secant, two tangents, or two secants intersect *outside* a circle, then the measure of the angle formed is one half the *difference* of the measures of the intercepted arcs.



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



$m\angle 2 = \frac{1}{2}(m\overset{\frown}{PQR} - m\overset{\frown}{PR})$



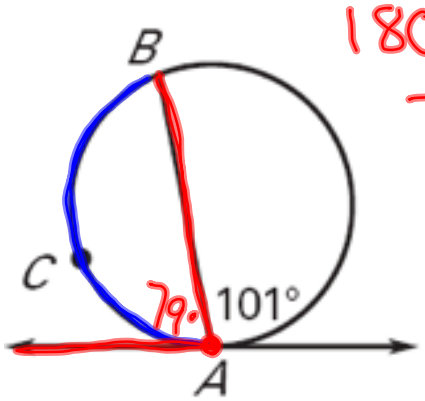
$m\angle 3 = \frac{1}{2}(m\overset{\frown}{XY} - m\overset{\frown}{WZ})$

Proof: Ex. 29, p. 685

Find Arc and Angle Measures

Find the indicated arc measure.

$m\overset{\frown}{ACB}$

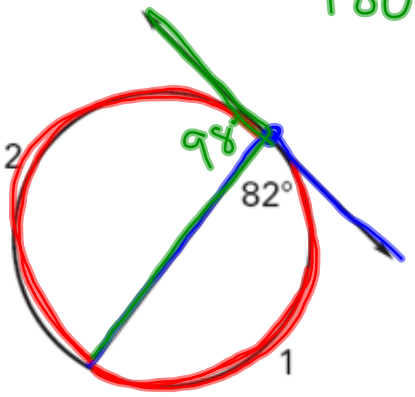


180 − 101 = 79°

79 · 2

$m\overset{\frown}{ACB} = 158°$

$m\overset{\frown}{1}$ and $m\overset{\frown}{2}$



180 − 82

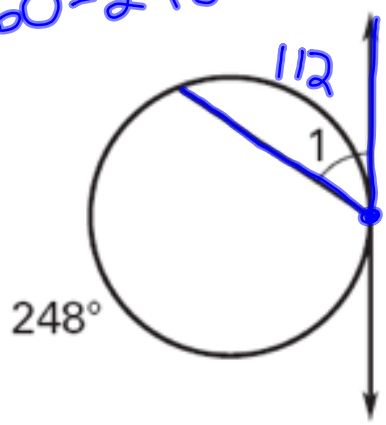
$m\overset{\frown}{1} = 82 \cdot 2 = 164°$

$m\overset{\frown}{2} = 98 \cdot 2 = 196°$

Angles Inside & Outside a Circle

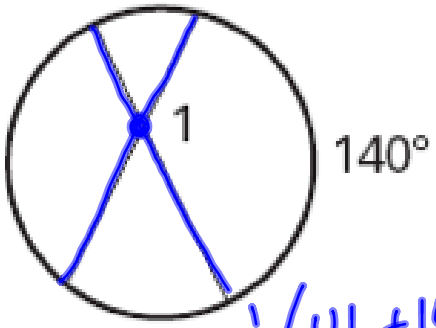
Find $m\angle 1$.

$360-248=$



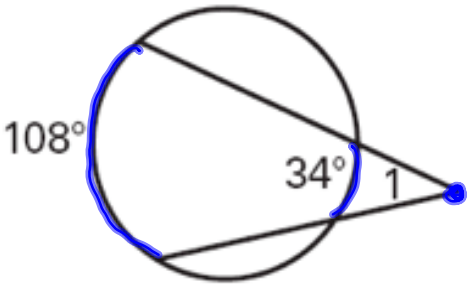
$m\angle 1 = 112 \div 2$

$m\angle 1 = 56°$



$m\angle 1 = \frac{1}{2}(116+140)$

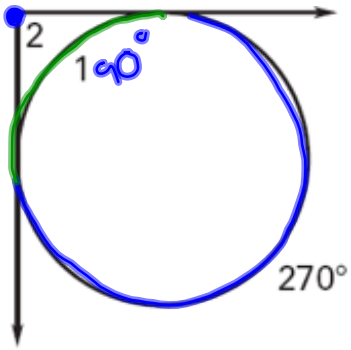
$m\angle 1 = 128°$



$m\angle 1 = \frac{1}{2}(108-34)$

$m\angle 1 = \frac{1}{2}(74)$

$m\angle 1 = 37°$



$360-270=$

$m\angle 1 = 90°$

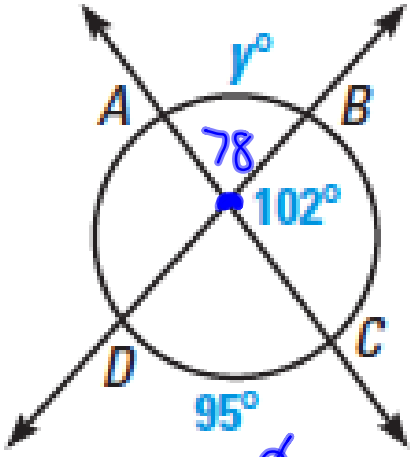
$m\angle 2 = \frac{1}{2}(270-90)$

$m\angle 2 = \frac{1}{2}(180)$

$m\angle 2 = 90°$

Properties of Angle Relationships

Find the value of the variables.

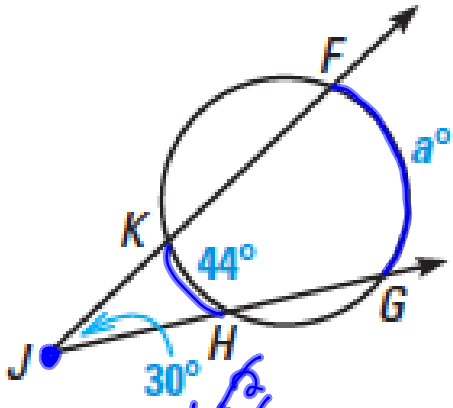


$180 - 102 =$

$2 \cdot 78° = \frac{1}{2}(y + 95)$

$156 = y + 95$

$y = 61°$



$2 \cdot 30 = \frac{1}{2}(a - 44)$

$60 = a - 44$

$+44 \quad +44$

$a = 104°$

Concentric Circles

The circles are concentric. Find the value of *x*.

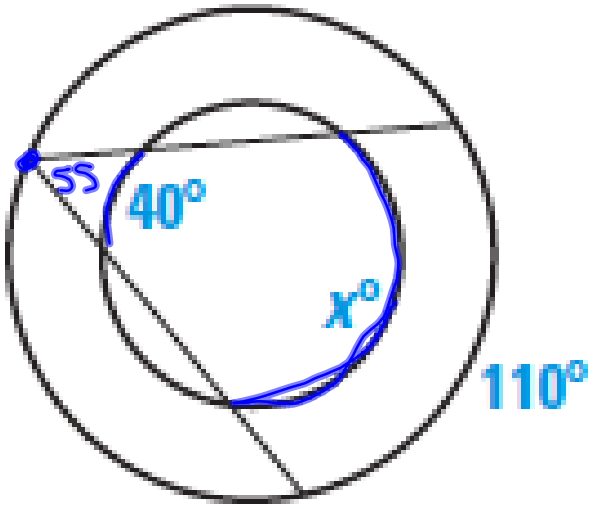
$110 \div 2 = 55$

$2 \cdot 55 = \frac{1}{2}(x - 40)$

$110 = x - 40$

$+40 \quad +40$

$x = 150°$



Homework Assignment

Worksheet 10.5B