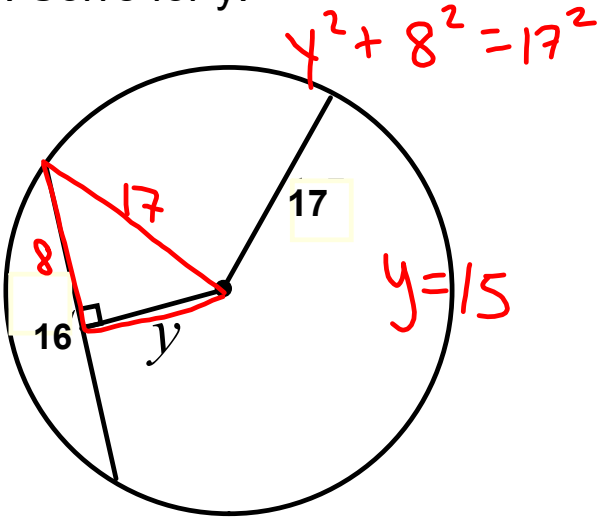
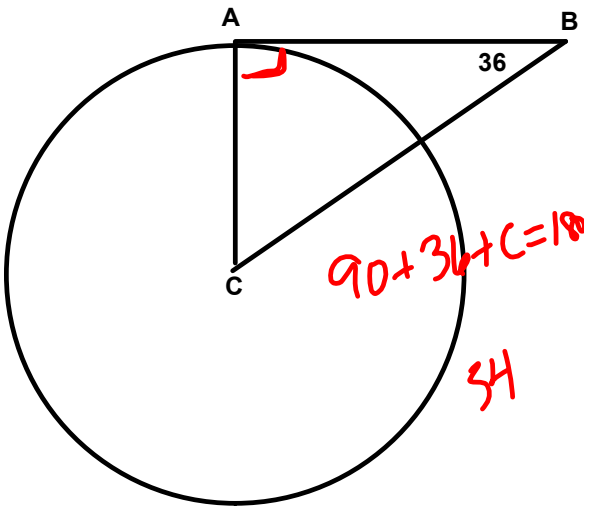
Warm Up:

1. Solve for y.



2. AB is a tangent. Find m<C



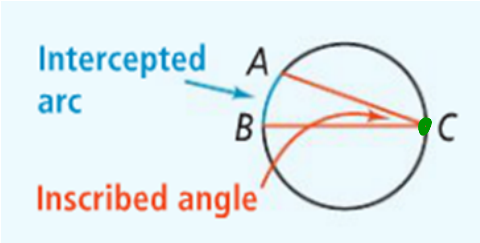
Learning Goal: Today I will learn about inscribed angles and intercepted arcs.

Success Criteria: I am able to solve for angles using the inscribed angles and intercepted arc properties.

12-3 Inscribed Angles

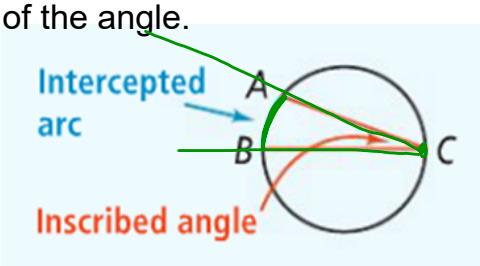
*Inscribed Angles

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



*Intercepted Arc

An arc with **endpoints** on the **side** of an inscribed angle and its other points in the **middle** of the angle.

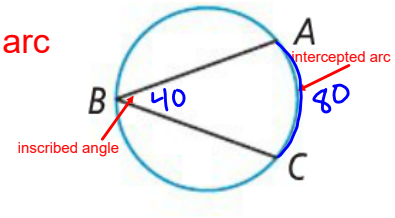


*Theorem 12-11

The measure of an **inscribed** angle is half the measure of its **intercepted** arc.

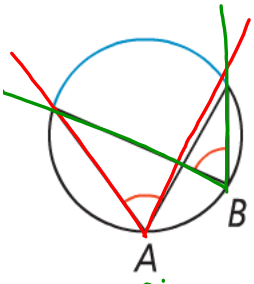
$\overset{\frown}{AC}$ is the **intercepted** arc

$$m\angle B = \frac{1}{2} m\overset{\frown}{AC}$$

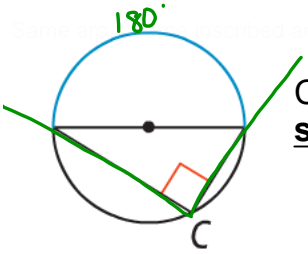


*Corollaries

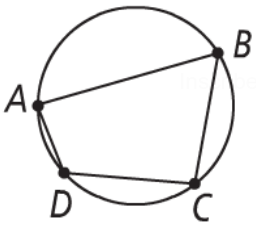
Think about this:



Corollary 1: Two inscribed angles that intercept the **same** arc are **congruent**.



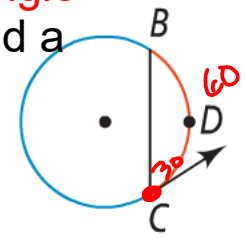
Corollary 2: An angle inscribed in a **semicircle** is a **right** angle

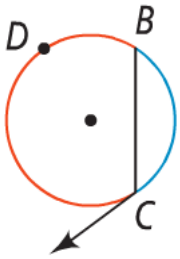


Corollary 3: The **sum** of the angles of a polygon inscribed in a circle is **360**

*Theorem 12-12

The measure of an angle formed by a chord and a tangent is half the measure of the intercepted arc.

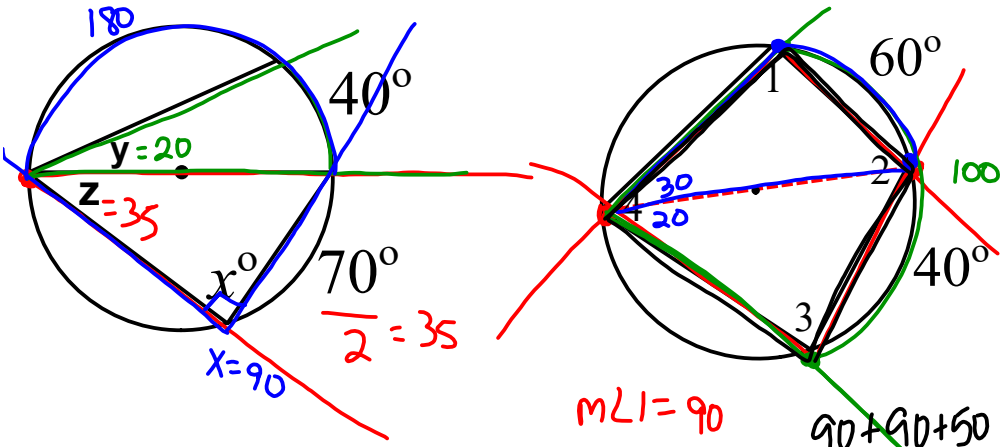




$$m\angle C = \frac{1}{2} m\overset{\frown}{BDC}$$

Inscribed Angles

Find the missing angles:



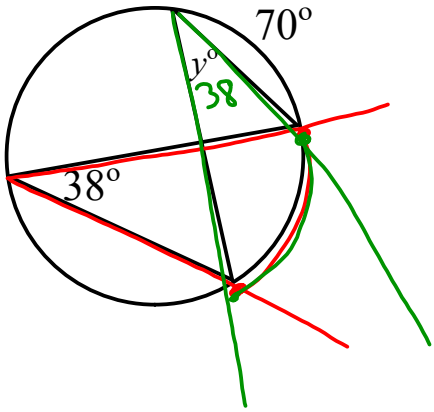
m∠1 = 90
m∠2 = 130
m∠3 = 90
m∠4 = 50

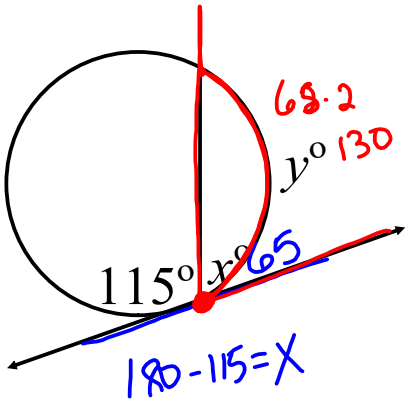
90+90+50
+X=360
230+X=360
X=130

Inscribed quadrilateral - opposite angles are supplementary

Inscribed Angles

Find the values of the variables.

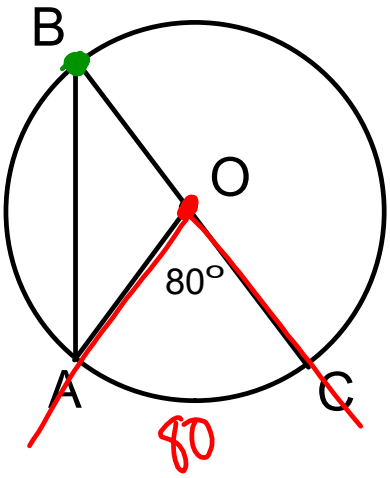




Inscribed quadrilateral - opposite angles are supplementary

Inscribed Angles

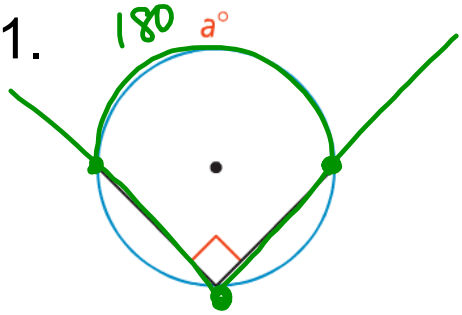
1. What is $m\overset{\frown}{AC}$? 80
2. What is $m\angle B$? 40



Got it?

Solve for the variables.

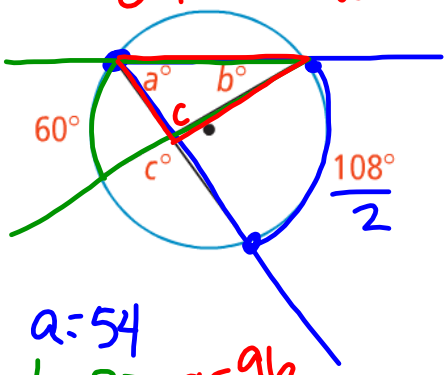
1.



2.

$54 + 30 + c = 180$

$84 + c = 180$



$a = 54$

$b = 30$ $c = 96$

Closure: Today I learned the properties of inscribed angles and intercepted arcs.