Central Angle

Inscribed Angles

An _____inscribed_____ angle is an angle with its _____vertex_____ (corner) on the circle and whose sides _____intersect_____ the circle. The _____arc_____ formed by the intersection of the two _____sides_____ of the angle and the circle is called an _____intercepted_____ _____arc_____.

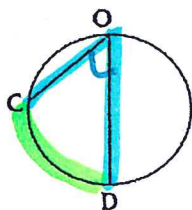Vertex → Inscribed Angle — Intercepted Arc
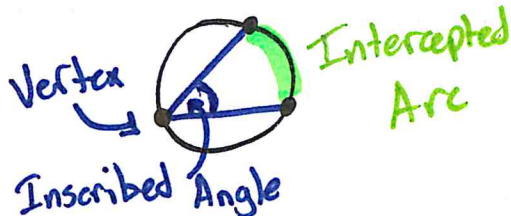
2 chords with one common point.

For the given circle, name the inscribed angle and its intersected arc.
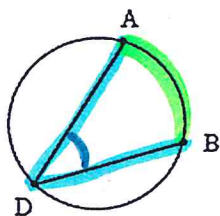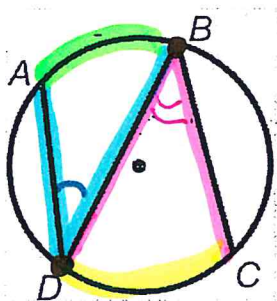

Inscribed angle: $\angle ADB$

Intercepted arc: $\overset{\frown}{AB}$

Inscribed angle: $\angle COD$

Intercepted arc: $\overset{\frown}{CD}$

For the given circle, name each inscribed angle and its intersected arc. Mark both with the same color.

$\angle ADB$

$\overset{\frown}{AB}$

$\angle DBC$

$\overset{\frown}{DC}$

The Inscribed Angle Theorem
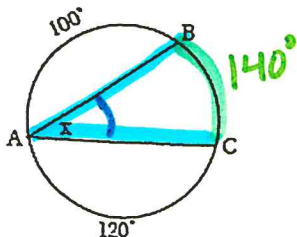
Inscribed ∠ = Intercepted Arc / 2

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

The measure of an **intercepted** arc is **twice** the measure of the **inscribed** angle whose **sides** pass through the **end points.** of the arc.

Intercepted Arc = Inscribed ∠ ×2

Solve for x.

$$360$$
$$-120$$
$$-100$$
$$140°$$

$100°$ B
$140°$
$$x = \frac{140}{2}$$
A x C
$$x = 70°$$
$120°$

For the given circle, find each:

$180°$ (semi-circle)

$$180$$
$$-90$$
$$-55$$
$$35°$$

A O B
$35°$ $55°$
$90°$
C

Vertex
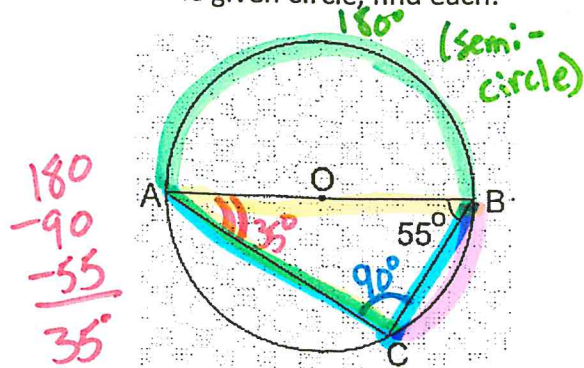
a.) m <ACB

$$m\angle ACB = \frac{180}{2}$$

$$m\angle ACB = 90°$$

b.) m BC

$$35 \times 2$$

$$m\, \widehat{BC} = 70°$$

Solve for x.

A
B $x°$ $27°$
$\bullet$ O
$54°$
D $27°$
C
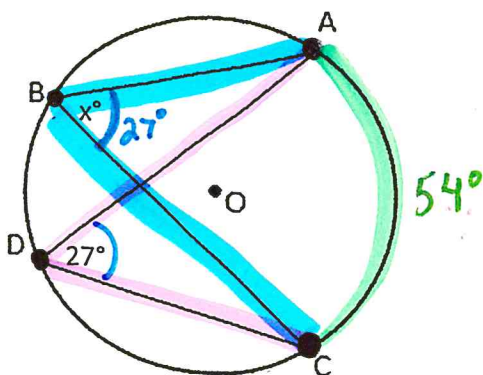
Since both **inscribed** **angles** intercept the **same** arc, they are **congruent**.

$$(\widehat{AC})$$

$$x = 27°$$