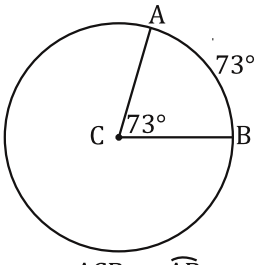
Central Angles and Inscribed Angles

What's in a circle...

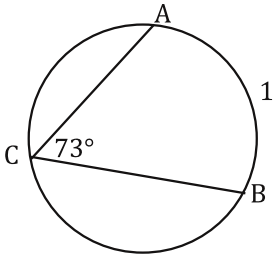
Angles! That's what... Okay, here are some really cool angles that go inside circles. They are actually pretty easy but can get tricky at times. Let's take a look.

Central Angles: A central angles is an angle that has its vertex at the center of the a circle and extends to the edge of the circle. Like the picture. Its measurement is equal to the measurement of its included arc. (The arc that is in the interior of the circle.) This makes sense because in order to measure an angle, we basically draw an arc between the rays with our protractor, and see how many degrees it is. Study the picture.



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

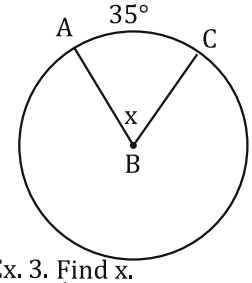
An Inscribed angle is an angle that has its vertex on the edge of the circle extending inward to the opposite edge of the circle. Its measurement is half its included arc, and consequently the included arc is twice the inscribed angle. Like this...



$m\angle ACB = 1/2 m\overset{\frown}{AB}$

$m\overset{\frown}{AB} = 2m\angle ACB$

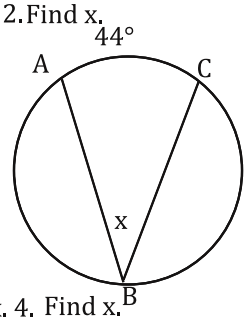
Ex. 1. Find x.



$m\angle B = m\overset{\frown}{AC}$

$x = 35°$

Ex. 2. Find x.

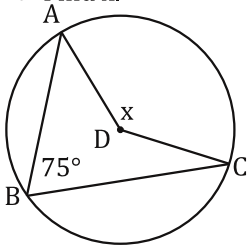


$2(m\angle B) = m\overset{\frown}{AC}$

$\frac{2x}{2} = \frac{44°}{2}$

$x = 22°$

Ex. 3. Find x.



$2(m\angle B) = m\overset{\frown}{AC}$

$2(75°) = m\overset{\frown}{AC}$

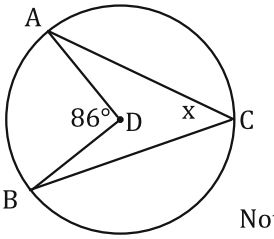
$150° = m\overset{\frown}{AC}$

$m\angle D = m\overset{\frown}{AC}$

$x = 150°$

Notice on this one x ended up being 2(75°).

Ex. 4. Find x.



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

$86° = m\overset{\frown}{AB}$

$x = 1/2 m\overset{\frown}{AB}$

$x = 1/2(86°)$

$x = 43°$

Notice on this one x ended up being 1/2(86°).