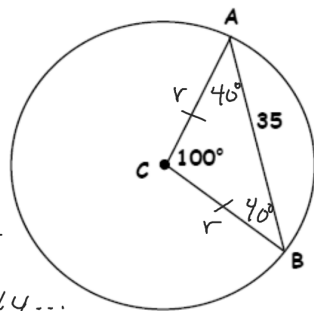Find the area of Circle C.

$A = \pi r^2$

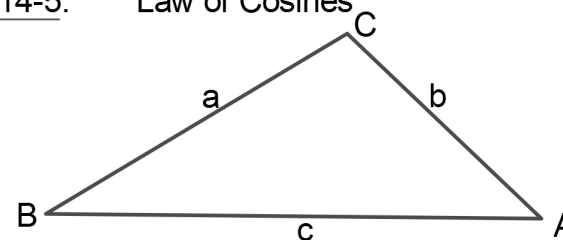

$\dfrac{\sin 100°}{35} = \dfrac{\sin 40°}{r}$

$r = 22.844...$

$A = 1638.52$

Sec 14-5:   Law of Cosines
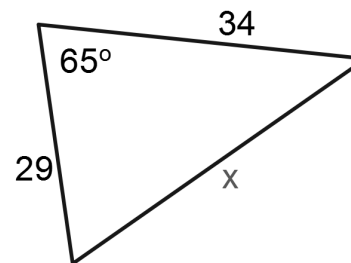

$c^2 = a^2 + b^2 - 2ab\cos C$

This angle and side must be opposite
of each other in the triangle.

$c^2 = a^2 + b^2 - 2ab\cos C$

What information is needed in order to
use the Law of Cosines to find a missing
side?

The other two sides and the angle
that is opposite of the missing side.

Use the Law of Cosines to find the measure of x to the
nearest tenth.

$x^2 = 34^2 + 29^2 - 2 \cdot 34 \cdot 29 \cos 65$

$\sqrt{x^2} = \sqrt{1163.5962...}$
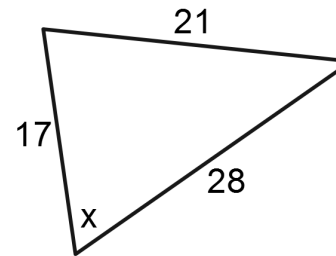
$x = 34.1$

$$c^2 = a^2 + b^2 - 2abCosC$$

What information is needed in order to use the Law of Cosines to find a missing angle?
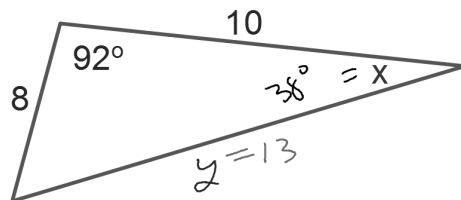
All three sides

Use the Law of Cosines to find the measure of x to the nearest tenth.

21

17

28

x

$21^2 = 17^2 + 28^2 - 2(17)(28)CosX$
$-17^2 - 28^2 \quad -17^2 - 28^2$
$-632 = -952\ CosX$
$\dfrac{-632}{-952} = CosX$
$X = Cos^{-1}\left(\dfrac{-632}{-952}\right)$
$X = 48.4°$

Find the measure of x to the nearest tenth.

10

92°

8

38° = X

y = 13

First, you must find the side opposite 92°

$y^2 = 8^2 + 10^2 - 2(8)(10)Cos92°$

$\sqrt{y^2} = \sqrt{169.5839}$

$y = 13$

then you can use either Law of **Sines** or **Cosines** to find angle x.

$\dfrac{Sin92}{13} = \dfrac{SinX}{8}$

$SinX = 0.615$

$X = Sin^{-1}(.615) = 37.95 \approx 38°$

OR

$8^2 = 10^2 + 13^2 - 2 \cdot 10 \cdot 13\ CosX$

$CosX = 0.78846$

$X = Cos^{-1}(0.78846)$

$= 37.95 \approx 38°$

You can now finish Hwk #39   Sec 14-5

Page 810

Problems 1, 2, 7, 8, 14, 26