

Homework

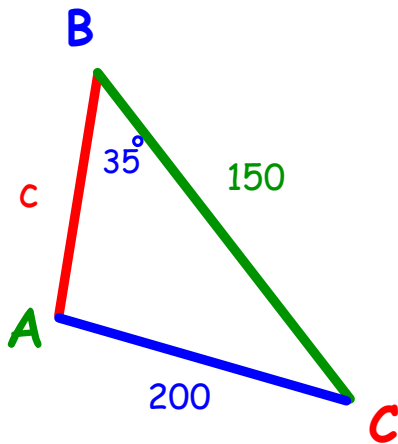
Law of Sines HW:

12.4 Pg. 819 #5-7,21-28,37,39,42

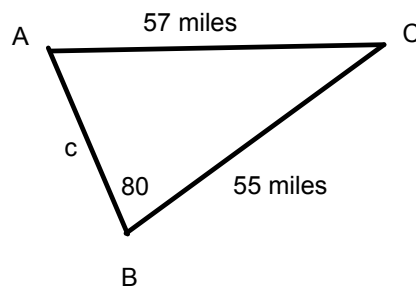
Tonights Law of Cosines HW

12.5 Pg. 826 #9-20 & WS

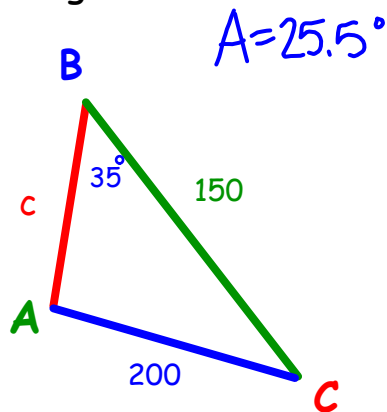
What is the measure of angle A ?



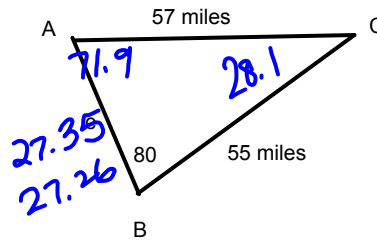
Find the measure of angle C and distance of c



What is the measure of angle A ?



Find the measure of angle C and distance of c

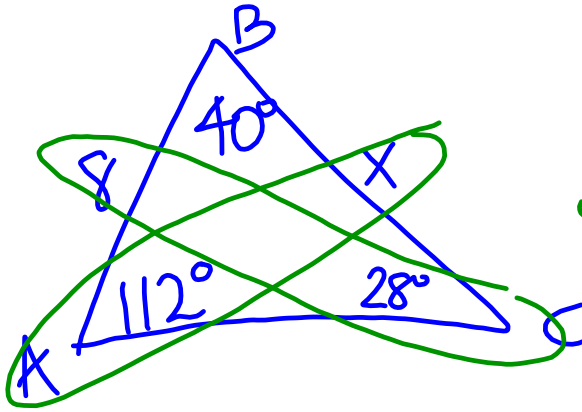


$$\frac{\sin 28.1}{c} = \frac{\sin 80}{57}$$

$$\frac{57 \sin(28.1)}{\sin 80} = \frac{c \cdot \sin(80)}{\sin 80}$$

LESSON 12-5 Law of Cosines

I can... solve for missing sides and angles in triangles using Law of Sines, and Law of Cosines.

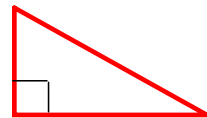


$$\frac{\sin 112}{X} = \frac{\sin 28}{8}$$

12.5 Law of Cosines

Right angle triangles
SohCahToa

Pythagorean Theorem

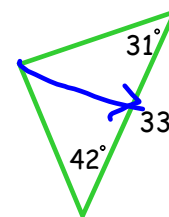
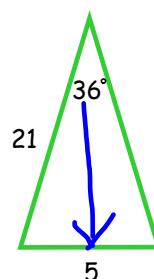
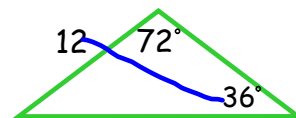


Law of Sines
Given Angle and
Opposite Side

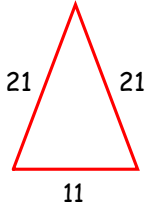
SAA

SSA

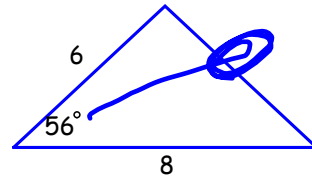
ASA



What about triangles where we know side-side-side
 or
 we know side-angle-side?
 OR
 are not given an angle and opposite side?



SSS



SAS

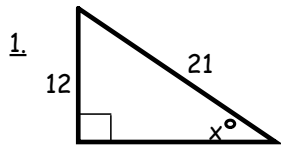
This is when we use Law of Cosines!

****Last Resort!****

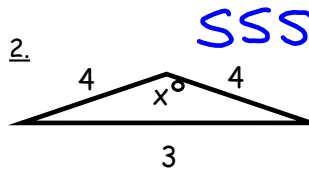
Triangle Table

<u>What we Know</u>	<u>What we Use</u>
90 degree angle	SohCahToa Pythag.
Given side and Opposite Angle S-S-A, S-A-A, A-S-A	Law of Sines
S-S-S or S-A-S	Law of Cosines

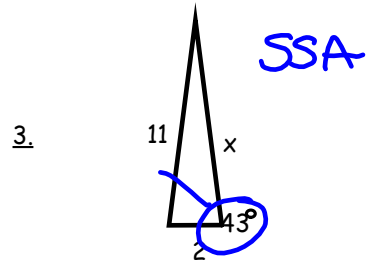
Decide if you would solve for the unknown, x , using SohCahToa, Law of Sines, or Law of Cosines.



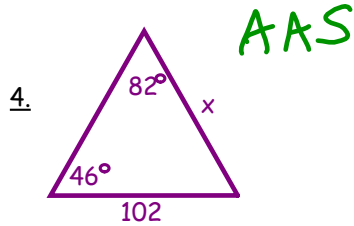
SohCahToa Law of Sines
Law of Cosines



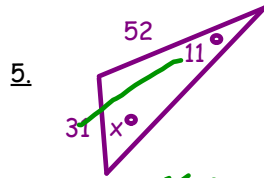
SohCahToa Law of Sines
Law of Cosines



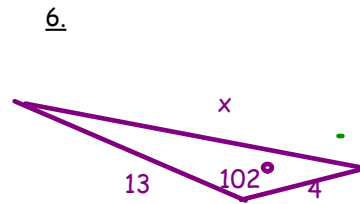
SohCahToa Law of Sines
Law of Cosines



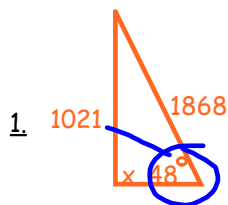
SohCahToa Law of Sines
Law of Cosines



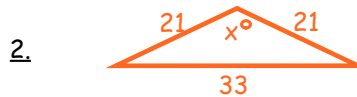
SohCahToa Law of Sines
Law of Cosines



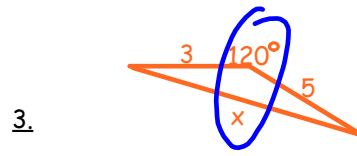
SohCahToa Law of Sines
Law of Cosines



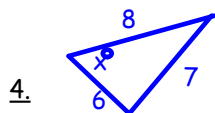
SohCahToa Law of Sines
Law of Cosines



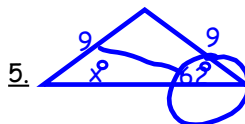
SohCahToa Law of Sines
Law of Cosines



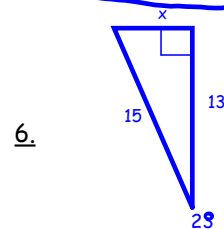
SohCahToa Law of Sines
Law of Cosines



SohCahToa Law of Sines
Law of Cosines



SohCahToa Law of Sines
Law of Cosines



SohCahToa Law of Sines
Law of Cosines

So, what is the Law of Cosines?

Given sides Given Angle

$$a^2 = b^2 + c^2 - 2bc(\cos A)$$

$$b^2 = a^2 + c^2 - 2ac(\cos B)$$

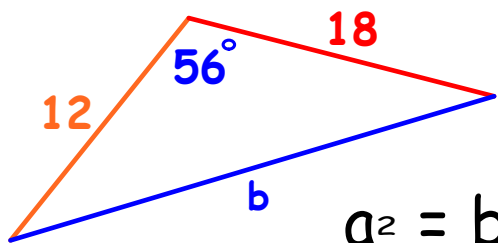
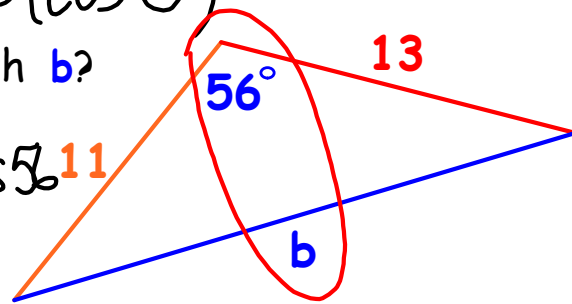
$$c^2 = a^2 + b^2 - 2ab(\cos C)$$

How do you find the length b ?

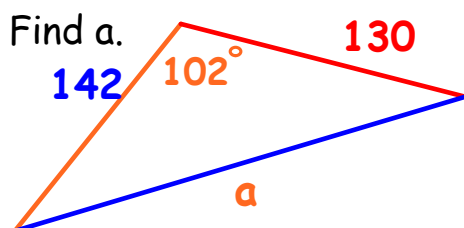
$$b^2 = 11^2 + 13^2 - 2 \cdot 11 \cdot 13 \cos 56^\circ$$

$$\sqrt{b^2} = \sqrt{130.0708}$$

$$b = 11.4$$

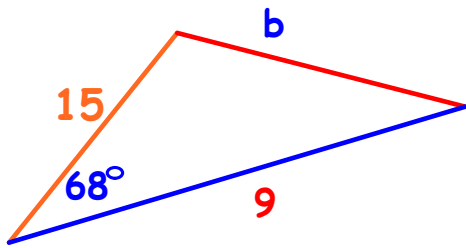
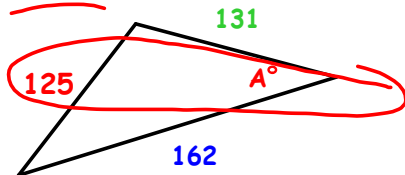


$$a^2 = b^2 + c^2 - 2bc(\cos A)$$



SOLVE!!!

$$a^2 = b^2 + c^2 - 2bc (\cos A)$$

Solve for b .Find A° 

Identify what you know

$$a = 125 \quad b = 131 \quad c = 162$$

Identify the equation you need to know

Substitute your values into the equation.

SOLVE!!!

$$a^2 = b^2 + c^2 - 2bc (\cos A)$$

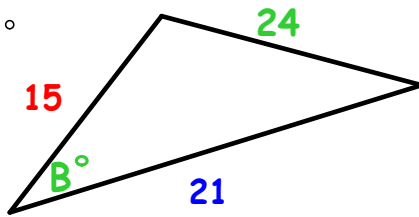
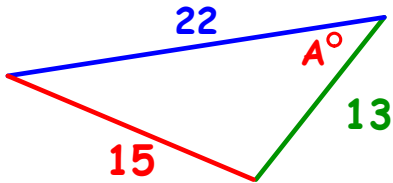
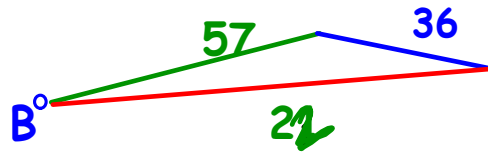
sad meep

$$125^2 = 131^2 + 162^2 - 2(131)(162)(\cos A)$$

$$\begin{aligned} -27780 &= \frac{-2 \cdot 131 \cdot 162 \cos A}{-2 \cdot 131 \cdot 162} \end{aligned}$$

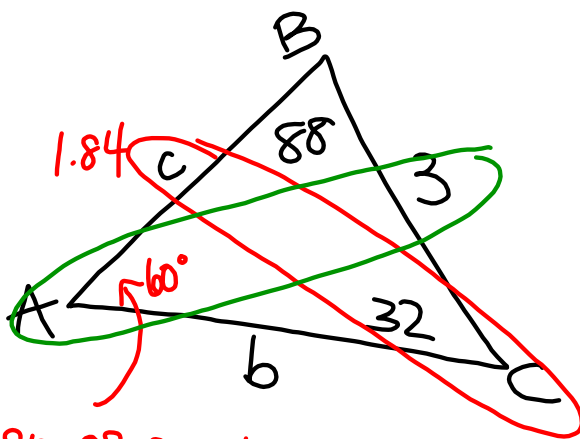
$$\cos A = .6545094713$$

$$\cos^{-1}(\quad) = A \quad A = 49.11$$

1. Find B° 2. Solve for A° 3. Solve for B° **12.5 Pg. 826 #9-20** ←AND WS ←

$$\frac{\sin A}{a} = \frac{\sin C}{c}$$

$$\frac{\sin B}{b} = \frac{\sin A}{a}$$



$$180 - 88 - 32 = 60$$

$$\frac{\sin 60}{3} = \frac{\sin 32}{c}$$

$$\frac{3 \cdot \sin(32)}{\sin 60} = \frac{c \cdot \sin(60)}{\sin 60}$$

$$c = 1.84$$

$$\frac{\sin 60}{3} = \frac{\sin 88}{b}$$

$$\frac{b \sin 60}{\sin 60} = \frac{3 \sin 88}{\sin 60}$$

$$b = 3.46$$

