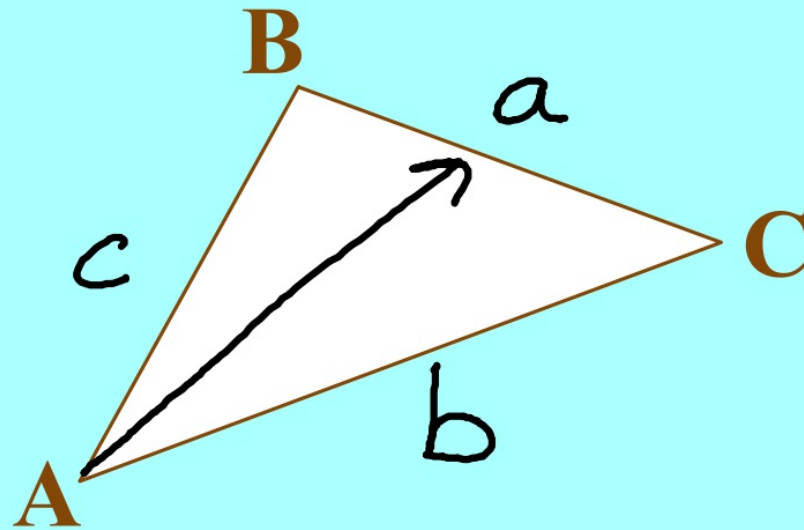


Warm Up

1) Correctly label the sides of the triangle:

a
b
c



2) What is the sum of the angles of a triangle?

180°

Here is a quick video that may hit home pretty hard for how this past unit has gone.

<https://www.youtube.com/watch?v=KdxEAt91D7k>

Our next unit consists of your ability to use 2 equations.

That's it!

And they will be given to you!

There is no excuse to perform poorly.

But honestly... some of you still will.

Complete All Assignments → Need an 86% Test / Quiz Avg. to get an A
Complete ½ Assignments → Need a 107% Test / Quiz Avg. to get an A
Complete ¼ Assignments → Need a 129% Test / Quiz Avg. to get an A (not possible)

Complete All Assignments → Need a 71% Test / Quiz Avg. to get a B
Complete ½ Assignments → Need a 93% Test / Quiz Avg. to get a B
Complete ¼ Assignments → Need a 114% Test / Quiz Avg. to get a B (not possible)

Complete All Assignments → Need a 57% Test / Quiz Avg. to get a C
Complete ½ Assignments → Need a 79% Test / Quiz Avg. to get a C
Complete ¼ Assignments → Need a 100% Test / Quiz Avg. to get a C

Complete All Assignments → Need a 43% Test / Quiz Avg. to Pass
Complete ½ Assignments → Need a 64% Test / Quiz Avg. to Pass
Complete ¼ Assignments → Need an 86% Test / Quiz Avg. to Pass

Lesson to be learned → DO YOUR WORK!!!

Trigonometry Part 1

Law of Sines

Right Triangle Trig.

Law of Sines.

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

Lower Case = sides Upper Case = Angles

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

Law of Sines can be used when you know 2 angles or have a matching angle and side.

Calculators should be in degree mode here.

Some questions will ask for one part or all missing parts.

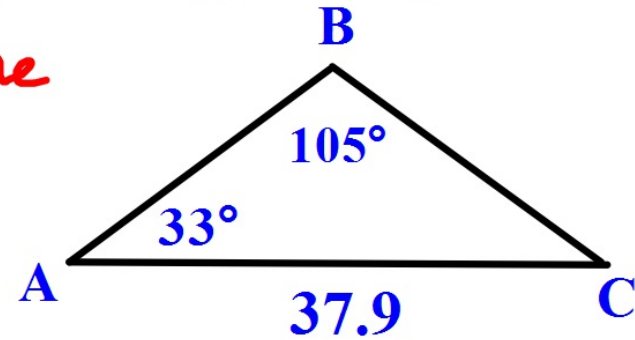
Example: Solve $\triangle ABC$, if $A = 33^\circ$, $B = 105^\circ$ and $b = 37.9$.

2 Angles = Law of Sine

1) Find C.

$$180 - 33 - 105 =$$

$$C = 42^\circ$$



2) Find a.

3) Find c

$$\frac{a}{\sin 33} = \frac{37.9}{\sin 105}$$

$$a = \frac{37.9 \sin 33}{\sin 105}$$

$$a = 21.4$$

* *
Rounding
sides = tenth
angles = whole degree

$$\frac{c}{\sin 42} = \frac{37.9}{\sin 105}$$

$$c = \frac{37.9 \sin 42}{\sin 105}$$

$$c = 26.3$$

Example 2: $\triangle ABC$, if $A = 35^\circ$, $a = 5$ and $c = 6$.

1) Find C.

$$\frac{\sin C}{6} = \frac{\sin 35}{5}$$

$$\sin C = \frac{6 \sin 35}{5}$$

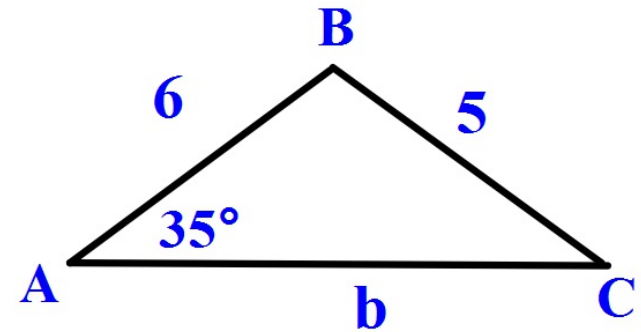
$$\sin^{-1}(\text{Ans}) = C \quad \text{OR} \quad \sin^{-1}\left(\frac{6 \sin 35}{5}\right)$$

$$C = 43^\circ$$

2) Find B.

$$180 - 35 - 43 = B$$

$$B = 102^\circ$$



3) Find b.

$$\frac{b}{\sin 102} = \frac{5}{\sin 35}$$

$$b = \frac{5 \sin 102}{\sin 35}$$

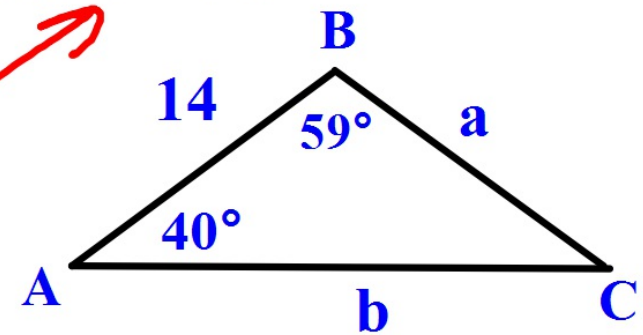
$$b = 8.5$$

Example 3: $\triangle ABC$, if $A = 40^\circ$, $B = 59^\circ$ and $c = 14$.

1) Find C.

$$180 - 40 - 59 =$$

$$C = 81^\circ$$



2) Find a.

$$\frac{a}{\sin 40} = \frac{14}{\sin 81}$$

$$a = \frac{14 \sin 40}{\sin 81}$$

$$a = 9.1$$

3) Find b.

$$\frac{b}{\sin 59} = \frac{14}{\sin 81}$$

$$b = \frac{14 \sin 59}{\sin 81}$$

$$b = 12.1$$

Solve each triangle. Round to the nearest tenth.

~~2. $a = 8.6$, $A = 27^\circ$, $B = 55^\circ$~~

3. If $B = 47^\circ$, $b = 15$, and $c = 17$

$$\frac{\sin C}{17} \rightarrow \frac{\sin 47}{15}$$

$$\sin C = \frac{17 \sin 47}{15}$$

$$\sin^{-1}(\text{Ans}) = C$$

$$\boxed{C = 56^\circ}$$

$$180 - 47 - 56 = A$$
$$\boxed{A = 77^\circ}$$

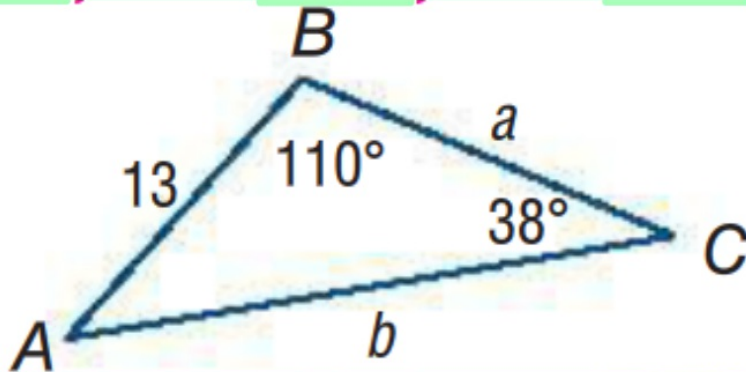
$$\frac{a}{\sin 77} \rightarrow \frac{15}{\sin 47}$$

$$a = \frac{15 \sin 77}{\sin 47}$$

$$\boxed{a = 20.0}$$

Solve each triangle. Round to the nearest tenth, if necessary.

1.



If you don't have a calc. with trig. you can still do this much.

$$180 - 110 - 38 = \boxed{32^\circ = A}$$

$$\frac{b}{\sin 110} = \frac{13}{\sin 38} \quad b = \frac{13 \sin 110}{\sin 38} =$$

$$\frac{a}{\sin 32} = \frac{13}{\sin 38} \quad a = \frac{13 \sin 32}{\sin 38} =$$