

You have already learned what sin, cos, and tan mean. Each is a fraction you can write using the sides of a right triangle. But what if you don't know one of those sides? That is where the calculator can help you.

We are still going to use **SOHCAHTOA** to help us with this. But we need to practice using the calculator before we get to working any problems.

First you need to check that your calculator is in the right mode. It should be in *degrees* mode. Try entering Sin 30. If you get 0.5 you are in the right mode. Otherwise you need to change it. I can show you how to do this on your calculator.

After you are sure that you are in degrees mode we are ready to start. Your calculator has information stored into it for every possible angle measure. Enter each of these into your calculator and round to the nearest tenth:

1.  $\cos 45$  .7    2.  $\sin 36$  .6    3.  $\tan 18$  .3    4.  $\sin 18$  .3

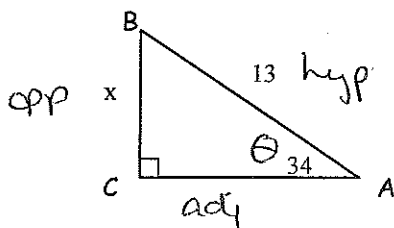
We could keep entering values all day and your calculator would know the answer. (But don't worry, we won't)

Now we will do a couple of examples of how to use the calculator to solve for a missing side. Here are the steps you need to use:

1. Mark the angle that you are going to use for this problem (usually the one that you are given - careful, don't use the right angle!)
2. Label the sides *in relation to* the angle that you are going to use (opposite, adjacent, hypotenuse)
3. Circle the sides you are going to use to make a trig function.
4. Decide which trig function you can make with those sides, either sin, cos, or tan.
5. Write the equation, using a variable for the missing side.
6. Solve the equation for the missing side. (using algebra steps)

Here are a few examples:

EX 1: Find x.

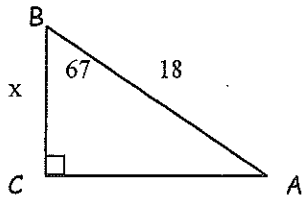


1. Mark angle A (since it is the one that we have a measure for)
2. Label the other two sides *in relation to* angle A (opp, hyp)
3. Circle these sides.
4. Decide which trig function you can make with Opp, Hyp (sin)
5. Write the equation, using the variable x for the missing side.
6. Solve the equation for x, using algebra.

$$\sin 34 = \frac{x}{13}$$

$$x = 7.3$$

EX 2: Find x.

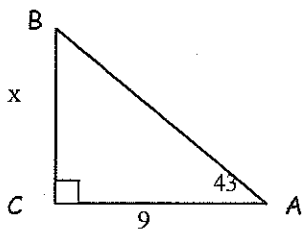


$$\cos 67 = \frac{x}{18}$$

$$x = 7$$

1. Mark angle B (since it is the one that we have a measure for)
2. Label the other two sides *in relation to* angle B (adj, hyp)
3. Circle these sides.
4. Decide which trig function you can make with Adj, Hyp (cos)
5. Write the equation, using the variable x for the missing side.
6. Solve the equation for x, using algebra.

EX 3: Find x.

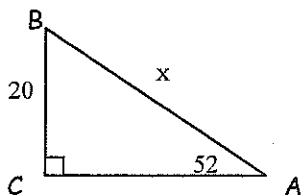


$$\tan 43 = \frac{x}{9}$$

$$x = 8.4$$

1. Mark angle A (since it is the one that we have a measure for)
2. Label the other two sides *in relation to* angle A (opp, adj)
3. Circle these sides.
4. Decide which trig function you can make with Opp, Adj (tan)
5. Write the equation, using the variable x for the missing side.
6. Solve the equation for x, using algebra.

EX 4: Find x. (this one is a little different!)



$$\sin 52 = \frac{20}{x}$$

$$x \sin 52 = 20$$

$$x = \frac{20}{\sin 52}$$

$$x = 25.4$$

1. Mark angle A (since it is the one we have a measure for)
2. Label the other two sides *in relation to* angle A (opp, hyp)
3. Circle these sides.
4. Decide which trig function you can make with Opp, Hyp (sin)
5. Write the equation, using the variable x for the missing side. Be careful here, this is different than the others. Where does x go?
6. Solve the equation for x, using algebra.