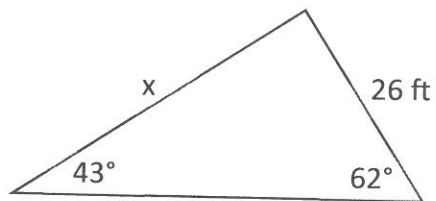
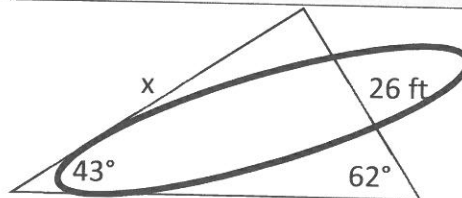


### Example 1

Determine the length of the missing side labelled  $x$ .



You can tell that a trig question requires the sine law when the question has a pair of “partners” given. “Partners” refers to an angle, and the side opposite that angle. You are looking for an angle and a side where you have been told the size of both. The “partners” in this question have been circled in the diagram below.



The sine law dictates that you put the given partners into a fraction, with the side ( $a$ ) on top and the angle ( $A$ ) on the bottom:

$$\frac{26}{\sin 43^\circ}$$

Now make that fraction equal to another fraction. In the second fraction, you are going to use the ‘partners’ that involve the side you are looking for. Since the unknown side is labelled  $x$ , put that on top and put its partner angle on the bottom:

$$\frac{26}{\sin 43^\circ} = \frac{x}{\sin 62^\circ}$$

Now cross-multiply and divide to find the value of  $x$ :

$$x = 26 \times \sin 62^\circ \div \sin 43^\circ$$

Make sure your calculator is in degree mode when you are entering the information into your calculator. You should get the answer below. If you don't, check with your online teacher for instructions on how to enter trig calculations into the calculator you are using. The answer is:

$$x = 33.66 \text{ ft}$$