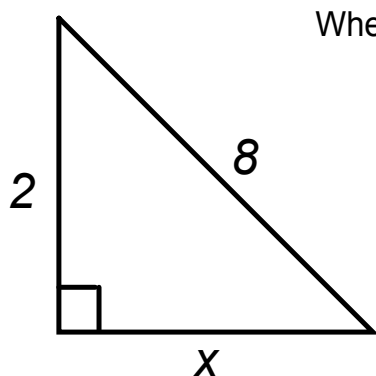


## Using Trig Functions

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How do you find the missing side length of a right triangle?



When 2 side lengths are given, use the **Pythagorean Theorem**

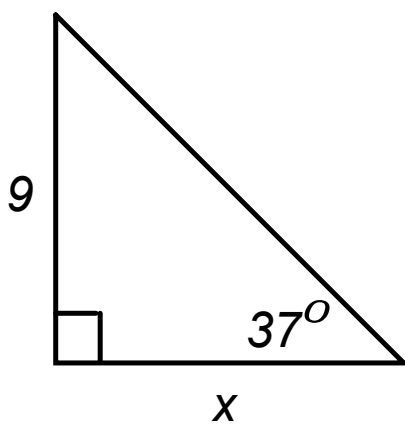
$$a^2 + b^2 = c^2$$
$$\text{leg}^2 + \text{leg}^2 = \text{hypotenuse}^2$$

**To find the value of the missing side length:**

How do you find the missing side length of a right triangle?

When only **one side length** is given and a **second angle** measure is given

---



Now Use a Trig Ratio:

$$\text{Sin} = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\text{Cos} = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\text{Tan} = \frac{\text{opposite}}{\text{adjacent}}$$

From  $37^\circ$

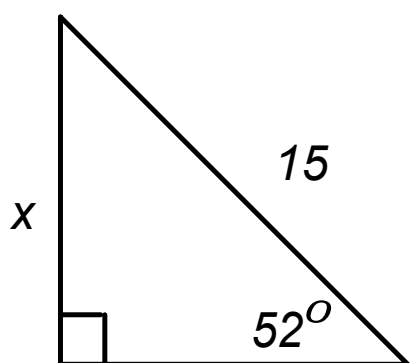
Which trig function allows the use of sides lengths 9 and x ?

**Find the value of side length x.**

## How do you find the missing side length of a right triangle?

When only **one side length** is given and a **second angle** measure is given

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Now Use a Trig Ratio:

$$\text{Sin} = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\text{Cos} = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\text{Tan} = \frac{\text{opposite}}{\text{adjacent}}$$

From  $52^\circ$

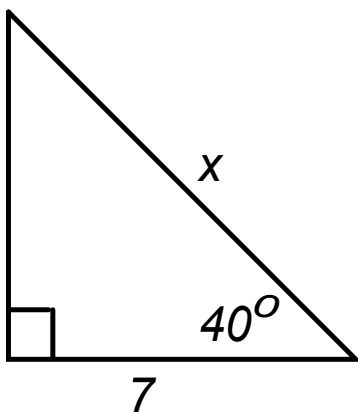
Which trig function allows the use of sides lengths 15 and x ?

**Find the value of side length x.**

## How do you find the missing side length of a right triangle?

When only **one side length** is given and a **second angle** measure is given

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Now Use a Trig Ratio:

$$\text{Sin} = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\text{Cos} = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\text{Tan} = \frac{\text{opposite}}{\text{adjacent}}$$

From  $40^\circ$

Which trig function  
allows the use of  
sides lengths  
7 and x ?

**Find the value of side length x.**

# Recap The Lesson

How Do You the Find Side Lengths of a Right Triangle?