

**Susan Sellers**  
**Trigonometry in the Real World**  
**CAWS Teacher Exchange**

**Objective:** Students will find values of trigonometric functions and apply them to solve right-triangle problems such as those used in drafting and machining. Students will know that  $\sin A = \text{opposite/hypotenuse}$ ,  $\cos A = \text{adjacent/hypotenuse}$ , and  $\tan A = \text{opposite/adjacent}$ .

**Resources:**  
Calculator or a trigonometric function table.

**Websites:**  
Purple Math – Trig Ratios and Inverse Trig Ratios  
Math.com – Trigonometry  
Kahn Academy – Trigonometry  
Onlinemathlearning.com – trigonometry (this site has many problems and explanations)

**Trigonometry videos:**  
Teacher Tube or You Tube

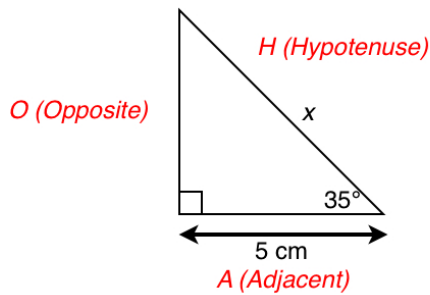
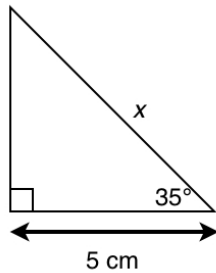
**Assessment:** Students will demonstrate that they can find the side or an angle of a right triangle using right triangle trigonometry.

CHANGES IN RED

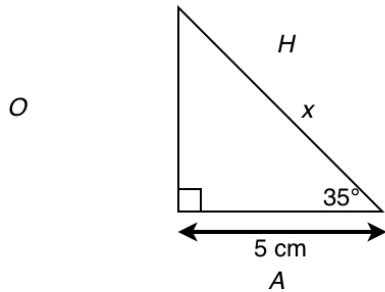
Find the Value of x

**Steps**

1. Label the sides of the triangle with hypotenuse (the longest side of a right triangle, which is always the side opposite of the right angle), opposite (the side opposite from the known angle), and adjacent (the side that is neither the hypotenuse or opposite)



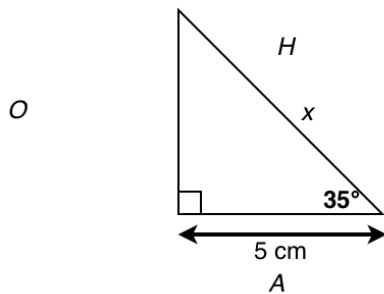
2. Find out what you know and what you need!



**Know**  
**A**

**Need**  
**H**

3. Find the part of SOHCAHTOA you need to use.



**Know**  
**A**

**Need**  
**H**

3. Use the following formula with any part of SOHCAHTOA (In this case CAH):

\*= JUST FLIP THE LETTER AND THE NUMBER!

$$\begin{aligned}\text{Cos(Known Angle)} &= \text{A/H} \\ \text{Cos}35 &= 5/x \\ 0.819152044288992 &= 5/x^* \\ x &= 5/0.819152044288992 \\ x &= 6.10387294380728\end{aligned}$$