Math 10C – Trigonometry (Labelling)

SohCahToa

$$\text{Sin } \theta = \frac{opp}{hyp} \qquad \text{Cos } \theta = \frac{adj}{hyp} \qquad \text{Tan } \theta = \frac{opp}{adj}$$

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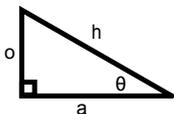
o is the side "opposite" to θ.

a is the side "adjacent" to θ which connects it to the 90 ° angle.
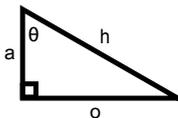
h is the "hypotenuse", or long diagonal side.

This triangle has the following angles: <A, <B, <C

This triangle has the following sides: AB, BC, AC

If we are solving for <A, label all the sides as "a,o,h" accordingly.

Next, write your Trigonometry ratios.

$$\text{Sin A } = \frac{o}{h} = \frac{BC}{AB}$$

$$\text{Cos A } = \frac{a}{h} = \frac{AC}{AB}$$

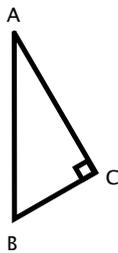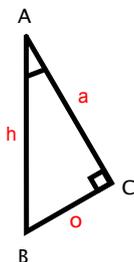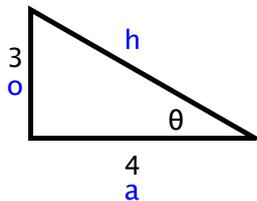$$\text{Tan A } = \frac{o}{a} = \frac{BC}{AC}$$

𝓜ath 10C – 𝒯rigonometry (𝒮olving)

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$$\text{Sin } \theta = \frac{\text{opp}}{\text{hyp}} \qquad \text{Cos } \theta = \frac{\text{adj}}{\text{hyp}} \qquad \text{Tan } \theta = \frac{\text{opp}}{\text{adj}}$$
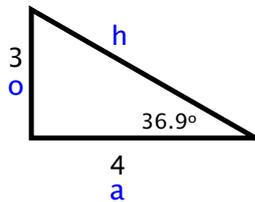

We are going to solve for our angle θ.
We have our opposite (3) and adjacent (4) sides.

$$\text{Tan } \theta = \frac{o}{a} \qquad \text{Tan } \theta = \frac{3}{4}$$

$$\theta = \text{Tan}^{-1} (0.75)$$

$$\theta = 36.9°$$

We are going to solve for our hypotenuse (h).
We could do this several ways:

① $\text{Sin } \theta = \frac{o}{h}$ ② $\text{Cos } \theta = \frac{a}{h}$ ③ Pythagoras Theorem

In this example we will use the first option.

$$\text{Sin } \theta = \frac{o}{h} \qquad \text{Sin } 36.9° = \frac{3}{h}$$

$$0.600 = \frac{3}{h}$$

Multiply both sides by h

$$0.600h = 3$$

Divide both sides by 0.600

$$h = \frac{3}{0.600}$$

$$h = 5$$

The hypotenuse (h) is 5 units long.