

In a right triangle, the ratios of the side lengths are related to the angles. These relationships form the basic trigonometric functions of sine, cosine, and tangent. The ratios can be remembered using the following mnemonic device:

SOH

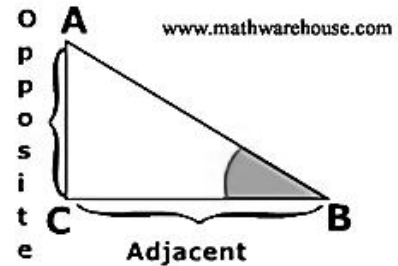
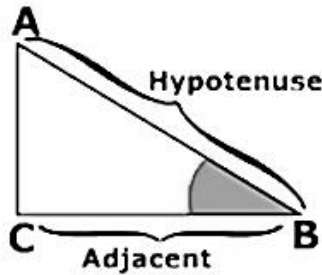
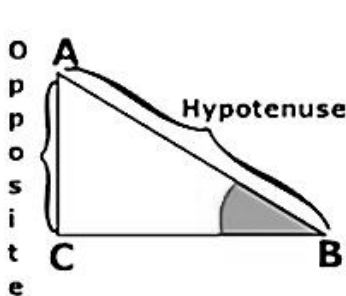
CAH

TOA

$$\sin(B) = \frac{\textit{opposite}}{\textit{hypotenuse}}$$

$$\cos(B) = \frac{\textit{adjacent}}{\textit{hypotenuse}}$$

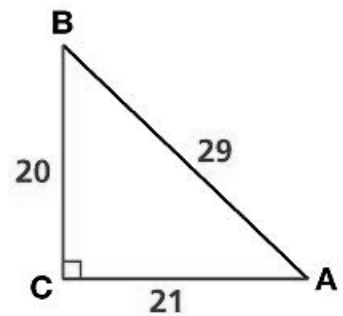
$$\tan(B) = \frac{\textit{opposite}}{\textit{adjacent}}$$



Example 1: Write the sine, cosine, and tangent ratios for $\angle A$ and $\angle B$.

SinA = _____ CosA= _____ TanA = _____

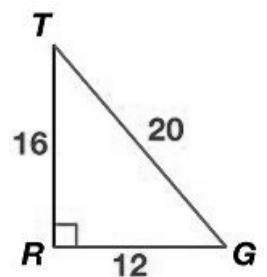
SinB = _____ CosB= _____ TanB = _____



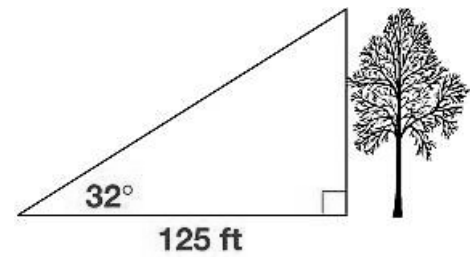
Example 2: Write the sine, cosine, and tangent ratios for $\angle G$ and $\angle T$.

SinG = _____ CosG= _____ TanG = _____

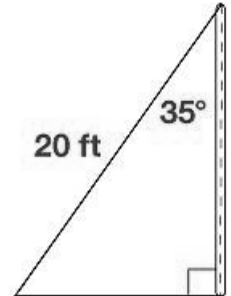
SinT = _____ CosT= _____ TanT = _____



Example 3: To measure the height of a tree, Alma walked 125 ft from the tree and measured a 32° angle from the ground to the top of the tree. Estimate the height of the tree.

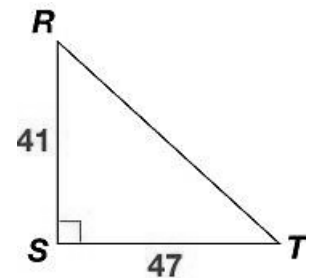


Example 4: A 20-ft. wire supporting a flagpole forms a 35° angle with the flagpole. To the nearest foot, how high is the flagpole?



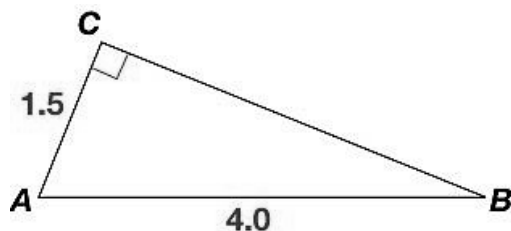
When the ratio of the two sides is known and you want to find the angle you must use the ***INVERSE*** trigonometric functions.

Example 5: Find $m\angle R$ to the nearest degree.



How could you find the measure of angle T? What is it?

Example 6: A right triangle has a leg 1.5 units long and hypotenuse 4.0 units long. Solve for all missing parts of the triangle (angles and sides).



Homework: Day 5 Worksheet