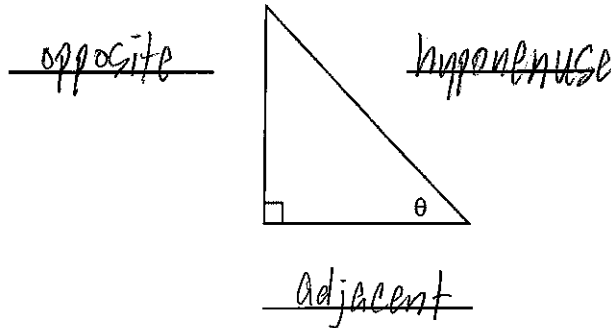


Guided Notes – Trigonometric Ratios and SOHCAHTOA

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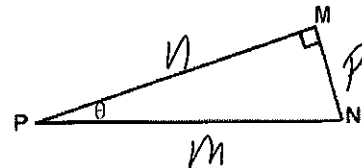
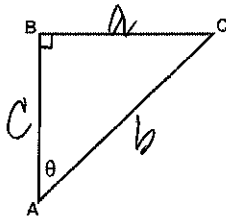
Triangle Sides (based on θ):

1. Label the triangle below with the correct sides labeled as either hypotenuse, opposite, or adjacent in relation to where θ is located.



2. Complete the following based off of the corresponding triangles below.

Label the sides of each triangle with the appropriate lower case letter.



Which side is the hypotenuse? b

Which side is the hypotenuse? m

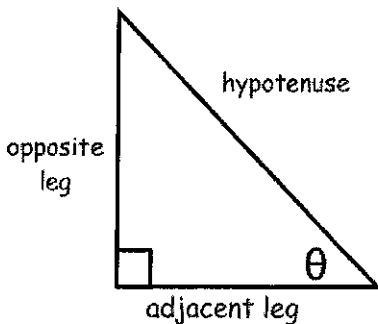
Which leg is opposite θ ? a

Which leg is opposite θ ? p

Which leg is adjacent to θ ? c

Which leg is adjacent to θ ? n

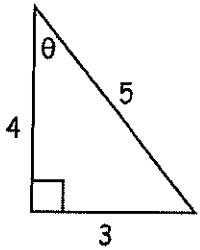
What are the Trigonometric Ratios?



SohCahToa

Sine	$\sin \theta = \frac{\text{opp} / \text{hyp}}$
Cosine	$\cos \theta = \frac{\text{adj} / \text{hyp}}$
Tangent	$\tan \theta = \frac{\text{opp} / \text{adj}}$

How do we use these ratios?

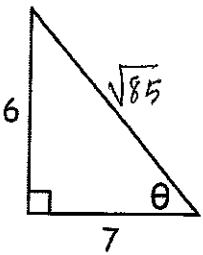


$$\sin \theta = \frac{o}{h} = \frac{3}{5}$$

$$\cos \theta = \frac{a}{h} = \frac{4}{5}$$

$$\tan \theta = \frac{o}{a} = \frac{3}{4}$$

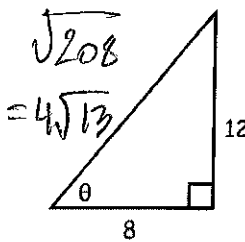
Find the missing side (use Pythagorean Theorem) and evaluate each for $\sin \theta$, $\cos \theta$, and $\tan \theta$.



$$\sin \theta = \frac{o}{h} = \frac{6\sqrt{85}}{85}$$

$$\cos \theta = \frac{a}{h} = \frac{7\sqrt{85}}{85}$$

$$\tan \theta = \frac{o}{a} = \frac{6}{7}$$



$$\sin \theta = \frac{o}{h} = \frac{3\sqrt{13}}{13}$$

$$\cos \theta = \frac{a}{h} = \frac{2\sqrt{13}}{13}$$

$$\tan \theta = \frac{o}{a} = \frac{3}{2}$$

$$\frac{12}{4\sqrt{13}}$$

$$\frac{3}{\sqrt{13}}$$

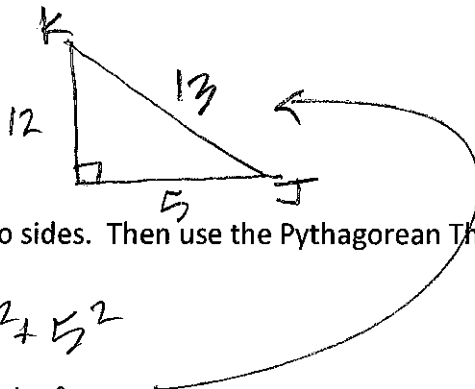
$$\frac{12}{8}$$

How would you solve the following problem?

Suppose $\angle J$ and $\angle K$ are complementary angles in a right triangle. The value of $\tan J = \frac{12}{5}$.

What is the value of $\sin J$?

1. Draw and label a triangle for the problem.



2. Use the given trig ratio to label the lengths of two sides. Then use the Pythagorean Theorem to find the third side.

$$c^2 = 12^2 + 5^2$$

$$c^2 = 169$$

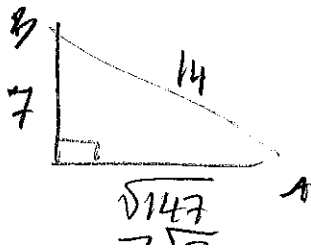
3. Using the measures of the sides of the triangle, find $\sin J$.

$$\sin J = \frac{12}{13}$$

Try this one...

Suppose $\angle A$ and $\angle B$ are complementary angles in a right triangle. The value of $\sin A = \frac{7}{14}$.

What is the value of $\cos A$?



$$\cos A = \frac{7\sqrt{3}}{14} = \frac{\sqrt{3}}{2}$$