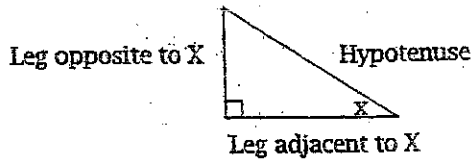


Name _____ Period _____

Trigonometric Ratios

Use this helpful mnemonic to remember the following ratios: Oscar Has A Heap Of Apples.



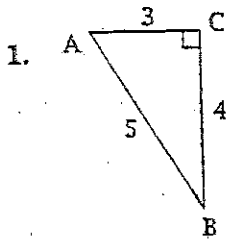
$$\text{Sine } x = \frac{\text{Opposite leg}}{\text{Hypotenuse}}$$

$$\text{Cosine } x = \frac{\text{Adjacent leg}}{\text{Hypotenuse}}$$

$$\text{Tangent } x = \frac{\text{Opposite leg}}{\text{Adjacent leg}}$$

Note: The trigonometric ratios hold only for right triangles.

Given a right triangle, find each trigonometric ratio. Leave your answer as a fraction. The first one has been started for you.



$$\sin A = \frac{4}{5}$$

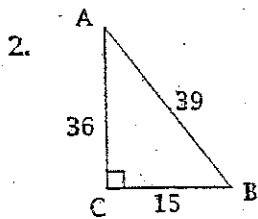
$$\sin B =$$

$$\cos A = \frac{3}{5}$$

$$\cos B =$$

$$\tan A = \frac{4}{3}$$

$$\tan B =$$



$$\sin A =$$

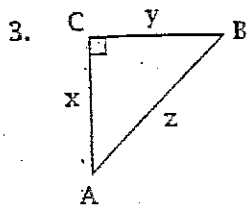
$$\sin B =$$

$$\cos A =$$

$$\cos B =$$

$$\tan A =$$

$$\tan B =$$



$$\sin A =$$

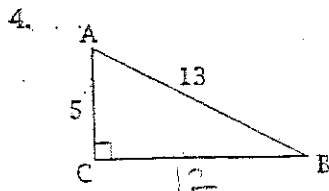
$$\sin B =$$

$$\cos A =$$

$$\cos B =$$

$$\tan A =$$

$$\tan B =$$



$$\sin A =$$

$$\sin B =$$

$$\cos A =$$

$$\cos B =$$

$$\tan A =$$

$$\tan B =$$

What did you notice about the $\sin A$ and $\cos B$?

Trigonometric Ratios

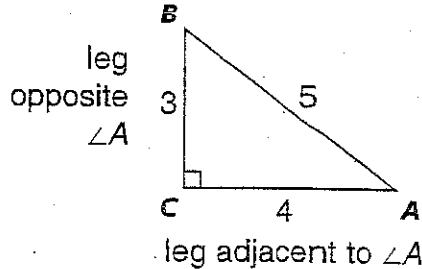
Remember

A trigonometric ratio is a ratio between two sides of a right triangle. *Sine*, *cosine*, and *tangent* are the three basic ratios. They are abbreviated as *sin*, *cos*, and *tan*. The made-up name "soh cah toa" can help you memorize the three basic ratios.

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

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

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



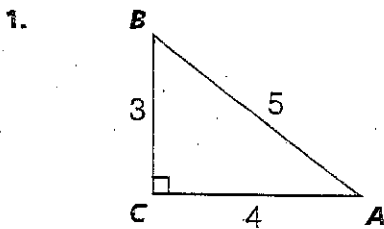
$$\sin A = \frac{\text{opp.}}{\text{hyp.}} = \frac{3}{5}$$

$$\cos A = \frac{\text{adj.}}{\text{hyp.}} = \frac{4}{5}$$

$$\tan A = \frac{\text{opp.}}{\text{adj.}} = \frac{3}{4}$$



Draw straight lines to match each trigonometric ratio to its value. The uncrossed words will reveal a message.



$\sin B$ •

You're

• $\frac{\text{adj.}}{\text{hyp.}} = \frac{3}{5}$

$\cos B$ •

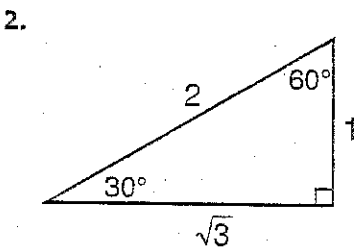
Get

• $\frac{\text{opp.}}{\text{adj.}} = \frac{4}{3}$

$\tan B$ •

You

• $\frac{\text{opp.}}{\text{hyp.}} = \frac{4}{5}$



$\sin 30^\circ$ •

need

• $\frac{\sqrt{3}}{2}$

$\sin 60^\circ$ •

a

• $\frac{\sqrt{3}}{1} = \sqrt{3}$

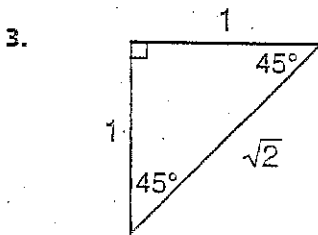
$\tan 30^\circ$ •

great

• $\frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

$\tan 60^\circ$ •

• $\frac{1}{2}$



$\cos 45^\circ$ •

trig

• $\frac{\text{opp.}}{\text{hyp.}} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\tan 45^\circ$ •

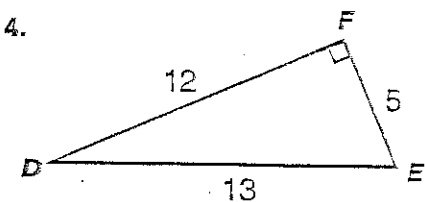
help

• $\frac{\text{adj.}}{\text{hyp.}} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\sin 45^\circ$ •

math

• $\frac{1}{1} = 1$



$\tan D$ •

• $\frac{12}{13}$

$\tan E$ •

student!

• $\frac{12}{5}$

$\cos D$ •

expert!

• $\frac{5}{12}$