

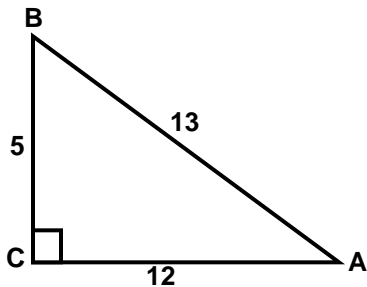
**TOPIC 8-1: TRIGONOMETRIC RATIOS IN RIGHT TRIANGLES**

**TRIGONOMETRIC RATIOS:** Ratios of the lengths of the sides of a \_\_\_\_\_ (related to the \_\_\_\_\_ angles).

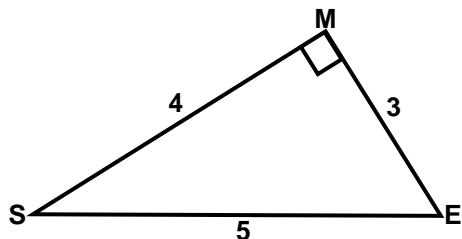
The three most common ratios are ***SINE, COSINE, & TANGENT.***

TRIGONOMETRIC RATIO	ABBREVIATION	DEFINITION
Sine		
Cosine		
Tangent		

**EXAMPLE 1** Find  $\sin A$ ,  $\cos A$ ,  $\tan A$ ,  $\sin B$ ,  $\cos B$ , and  $\tan B$ . Express each ratio as a fraction.



**EXAMPLE 2** Find  $\sin S$ ,  $\cos S$ , and  $\tan S$ .  
Express each ratio as a fraction.



You can use your calculator to evaluate expressions involving trigonometric ratios.

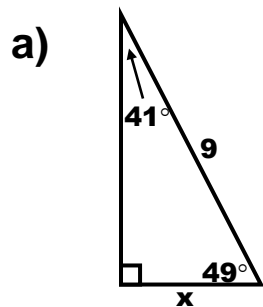
**EXAMPLE 3** Find each value, rounding to the nearest thousandth.

a)  $\cos 41^\circ =$  \_\_\_\_\_

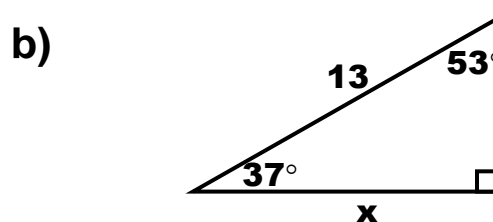
b)  $\sin 78^\circ =$  \_\_\_\_\_

**Caution!**

Be sure your  
calculator is in  
degree mode, not  
radian mode.

**EXAMPLE 4** Find the missing measurement(s).

Equation: \_\_\_\_\_

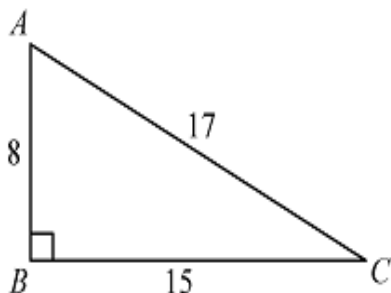
 $x =$  \_\_\_\_\_

Equation: \_\_\_\_\_

 $x =$  \_\_\_\_\_

**EXAMPLES 5 and 6**

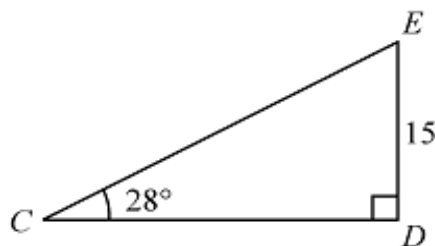
In the accompanying diagram of right triangle  $ABC$ ,  $AB = 8$  cm,  $BC = 15$  cm,  $AC = 17$  cm, and  $m\angle ABC = 90^\circ$ .



What is  $\tan \angle C$ ?

- A**  $\frac{17}{15}$
- B**  $\frac{8}{17}$
- C**  $\frac{15}{17}$
- D**  $\frac{8}{15}$

In the diagram of  $\triangle CDE$  below,  $m\angle D = 90^\circ$ ,  $m\angle C = 28^\circ$ , and  $ED = 15$  inches.



Which equation can be used to find the length of  $\overline{CD}$ ?

- F**  $\sin 28^\circ = \frac{CD}{15}$
- G**  $\tan 28^\circ = \frac{CD}{15}$
- H**  $\sin 28^\circ = \frac{15}{CD}$
- J**  $\tan 28^\circ = \frac{15}{CD}$