

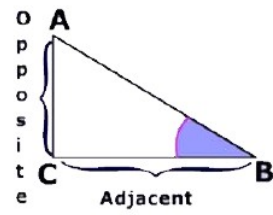
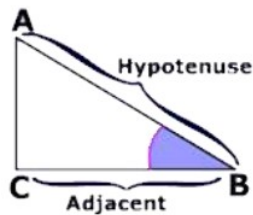
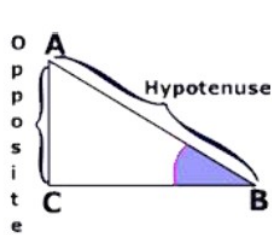
# TRIGONOMETRY - 1

## Part I Model Problems

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

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

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

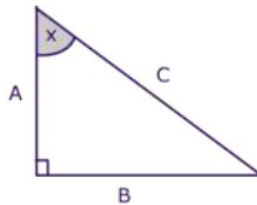


**Model Problem 1 ) Identify** The side adjacent, opposite to angle x and the hypotenuse

Adjacent to x : A

Opposite X : B

Hypotenuse : C



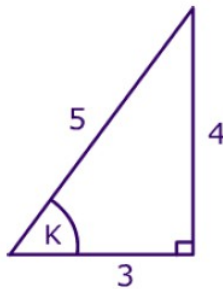
**Model Problem 2 )** What is  $\sin(k)$ ,  $\cos(k)$  and  $\tan(k)$ ?

Use SOHCAHTOA

$$\sin(k) = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{4}{5} = .8$$

$$\cos(k) = \frac{\text{adjacent}}{\text{hypotenuse}} = \frac{3}{5} = .6$$

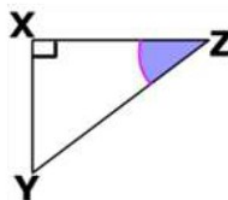
$$\tan(k) = \frac{\text{opposite}}{\text{adjacent}} = \frac{4}{3} = 1.33$$



## II. Identifying Opposite, Adjacent and Hypotenuse

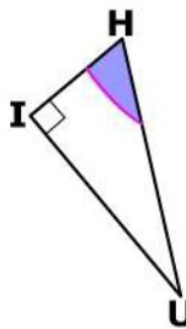
### Identify

- 1) the hypotenuse
- 2) the side opposite of  $\angle Z$  : \_\_\_\_\_
- 3) the side adjacent to  $\angle Z$  : \_\_\_\_\_



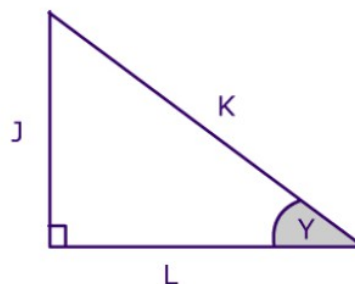
### Identify

- 4) the hypotenuse
- 5) the side opposite of  $\angle H$  : \_\_\_\_\_
- 6) the side adjacent to  $\angle H$  : \_\_\_\_\_



### Identify

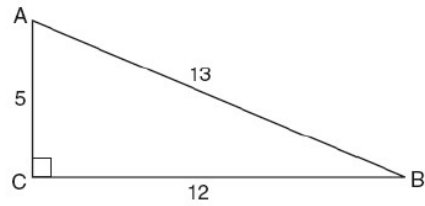
- 7) the hypotenuse
- 8) the side opposite of  $\angle Y$  : \_\_\_\_\_
- 9) the side adjacent to  $\angle Y$  : \_\_\_\_\_



**Part III. Writing Sine, Cosine, Tangent Ratios**

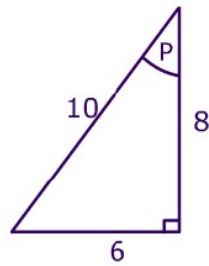
1) Which ratio represents  $\cos A$  in the accompanying diagram of  $\triangle ABC$ ?

- (1)  $\frac{5}{13}$                       (3)  $\frac{12}{5}$   
(2)  $\frac{12}{13}$                       (4)  $\frac{5}{5}$



2) Which ratio represents  $\sin P$  in the accompanying triangle?

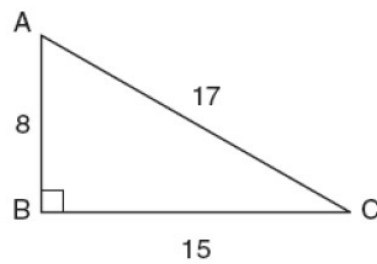
- (1)  $\frac{6}{10}$                       (3)  $\frac{6}{8}$   
(2)  $\frac{8}{10}$                       (4)  $\frac{10}{6}$



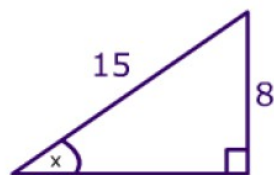
3) In the accompanying diagram of right triangle  $ABC$ ,  $AB = 8$ ,  $BC = 15$ ,  $AC = 17$ , and  $m\angle ABC = 90$ .

What is  $\tan \angle C$ ?

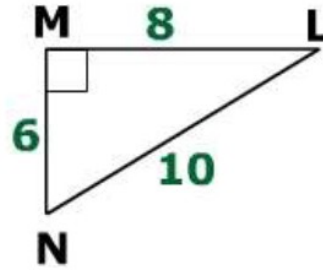
- (1)  $\frac{8}{15}$                       (3)  $\frac{8}{17}$   
(2)  $\frac{17}{15}$                       (4)  $\frac{15}{17}$



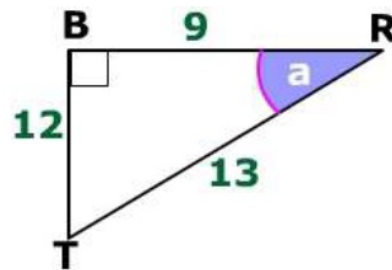
4) What is  $\sin(x)$  ?



5) What is  $\sin(L)$ ,  $\cos(L)$  and  $\tan(L)$ ?



6) What is  $\sin(a)$ ,  $\cos(a)$  and  $\tan(a)$ ?



7) In triangle  $XYZ$ ,  $\angle y = 90^\circ$ ,  $XY = 7$ ,  $YZ = 24$ , and  $XZ = 25$ , which ratio represents cosine of  $\angle x$ ?

- (1)  $\frac{7}{24}$       (3)  $\frac{7}{25}$   
 (2)  $\frac{24}{25}$       (4)  $\frac{24}{7}$

8) In triangle  $MCT$ , the measure of  $\angle T = 90^\circ$ ,  $MC = 85$  cm,  $CT = 84$  cm, and  $TM = 13$  cm. Which ratio represents the sine of  $\angle C$ ?

- (1)  $\frac{13}{85}$                       (3)  $\frac{13}{84}$   
 (2)  $\frac{84}{85}$                       (4)  $\frac{84}{13}$

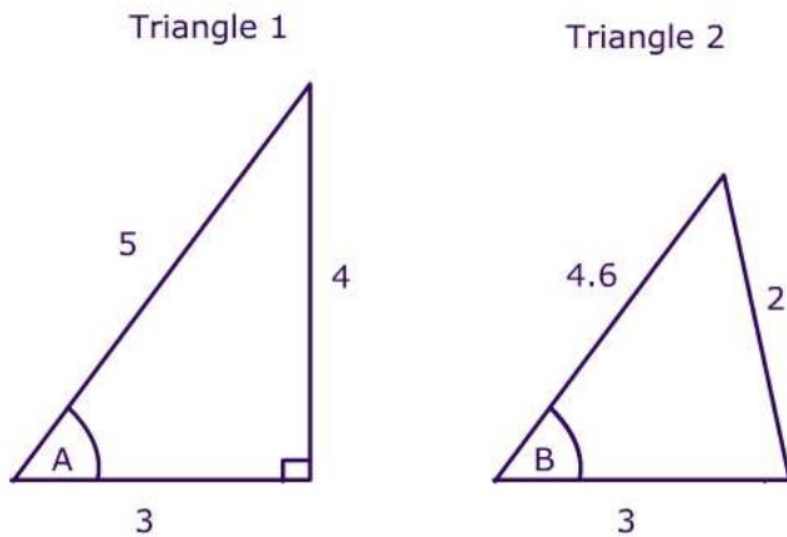
### Error Analysis

A teacher asks the class if they can express the  $\sin(A)$  in Triangle 1 and the  $\sin(b)$  in triangle 2.

Jose says  $\sin(A) = \frac{4}{5}$  and  $\sin(b)$  does not exist.

Jenny says  $\sin(A) = \frac{4}{5}$  and  $\sin(B) = \frac{2}{4.6}$

**Who is correct?** (explain your reasoning)



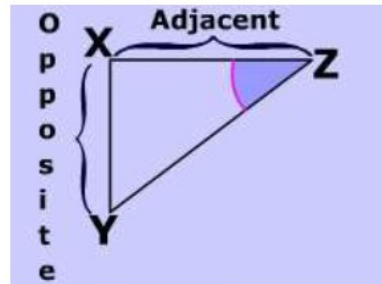
#### IV. Answer Key

*Identifying Opposite, Adjacent and Hypotenuse*

1) the hypotenuse **YZ**

2) the side opposite of  $\angle Z$  : **XY**

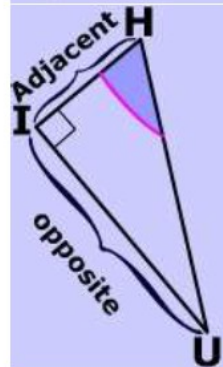
3) the side adjacent to  $\angle Z$  : **XZ**



4) the hypotenuse: **HU**

5) the side opposite of  $\angle H$  : **IU**

6) the side adjacent to  $\angle H$  : **HI**



*Writing Sine, Cosine, Tangent Ratios*

1)  $(1) \frac{5}{13}$

2)  $(1) \frac{6}{10}$

3)  $\tan(c) (1) \frac{8}{15}$

4)  $\sin(x) \frac{8}{15}$

5)  $\sin(L) = \frac{6}{10}$

$\cos(L) = \frac{8}{10}$

$\tan(L) = \frac{6}{8}$

6)  $\sin(a) = \frac{12}{13}$

$\cos(a) = \frac{9}{13}$

$\tan(a) = \frac{12}{9}$

7)  $(3) \frac{7}{25}$

8)  $(3) \frac{13}{84}$

#### Error Analysis

Jen is correct. Since **triangle 2** is **not** a right triangle, you can **not** apply sine, cosine, tangent to the triangle