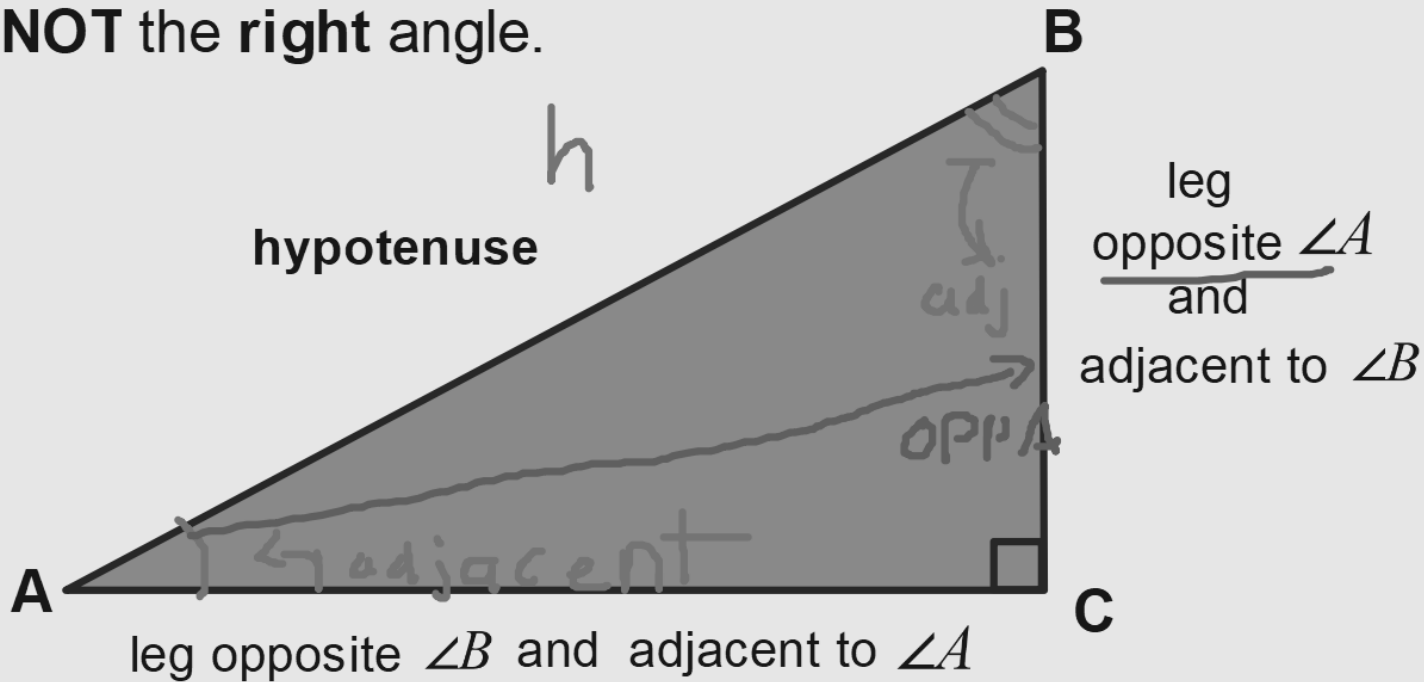


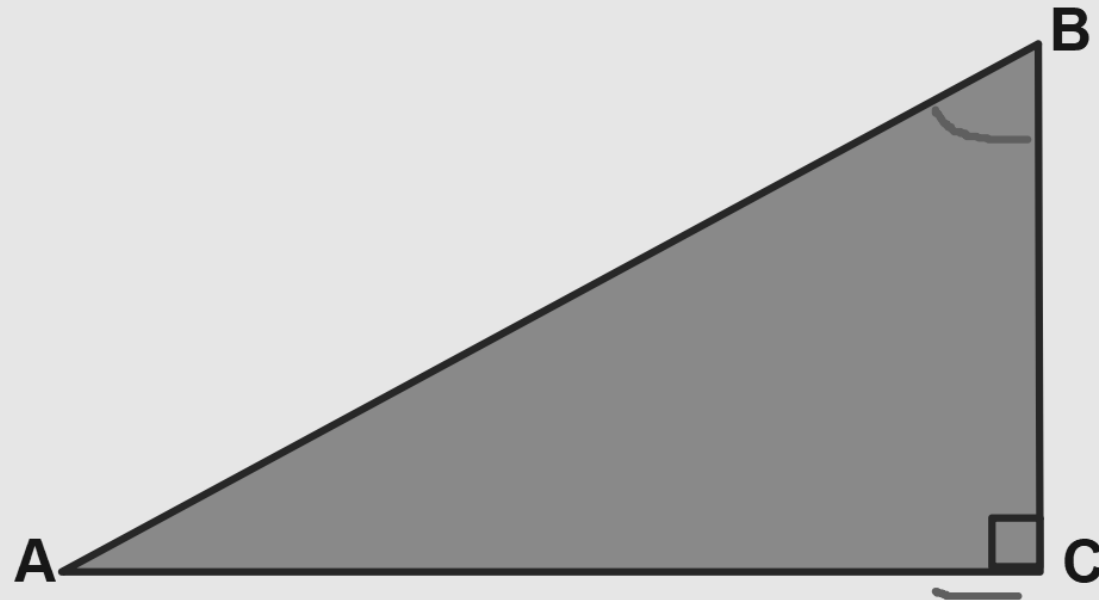
**UNIT 6 L 3 (SECTION 8-4): TRIGONOMETRY**  
**OBJECTIVES: FIND THE TRIGONOMETRIC RATIOS**  
**USING RIGHT TRIANGLES.**  
**SOLVE PROBLEMS USING TRIGONOMETRIC RATIOS.**

**Trigonometry-** The study of the properties of triangles and trigonometric functions and their applications.

**Trigonometric ratio-** A ratio of the lengths of sides of a right triangle. The 3 most common are sine, cosine, and tangent. Trigonometric ratios are related to the acute angles of a right triangle, **NOT** the right angle.



**UNIT 6 L 3 (SECTION 8-4): TRIGONOMETRY**  
**OBJECTIVES: FIND THE TRIGONOMETRIC RATIOS**  
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**SOLVE PROBLEMS USING TRIGONOMETRIC RATIOS.**



Which side is the hypotenuse? AB

Which leg is opposite  $\angle A$ ? BC

Which leg is adjacent to  $\angle A$ ? AC

Which leg is adjacent to  $\angle B$ ? BC

Which leg is opposite  $\angle B$ ? AC

**UNIT 6 L 3 (SECTION 8-4): TRIGONOMETRY**  
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SOH•CAH•TOA: Is the great Indian guide who will lead us in using Trigonometry to solve right triangles. His name is IMPORTANT. SPELLING COUNTS!!!!!!!!!!



I will lead you to the answer. All you have to do is remember how to spell my name.

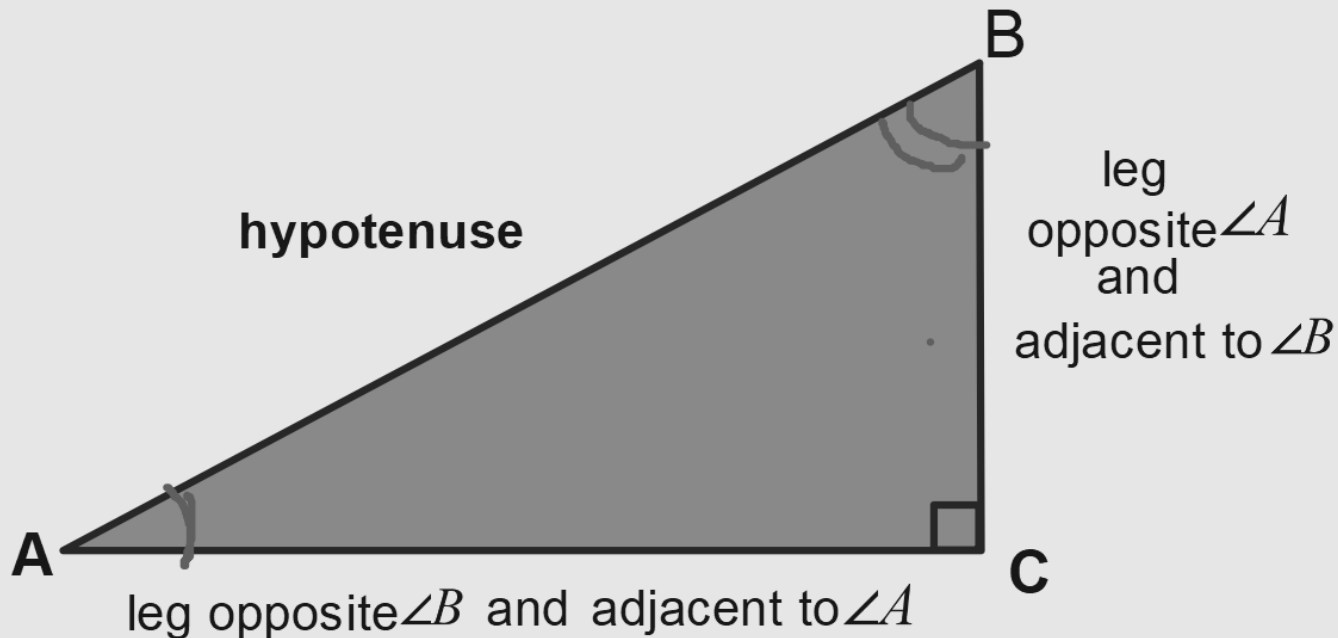
**UNIT 6 L 3 (SECTION 8-4): TRIGONOMETRY**  
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**SOLVE PROBLEMS USING TRIGONOMETRIC RATIOS.**

$$\sin C = \frac{c}{h}$$

**SOH - CAH - TOA**

$$\sin A = \frac{\text{opp}}{\text{hyp}} = \frac{BC}{AB} \quad \cos A = \frac{\text{adj}}{\text{hyp}} = \frac{AC}{AB} \quad \tan A = \frac{\text{opp}}{\text{adj}} = \frac{BC}{AC}$$

$$\sin B = \frac{\text{opp}}{\text{hyp}} = \frac{AC}{AB} \quad \cos B = \frac{\text{adj}}{\text{hyp}} = \frac{BC}{AB} \quad \tan B = \frac{\text{opp}}{\text{adj}} = \frac{AC}{BC}$$

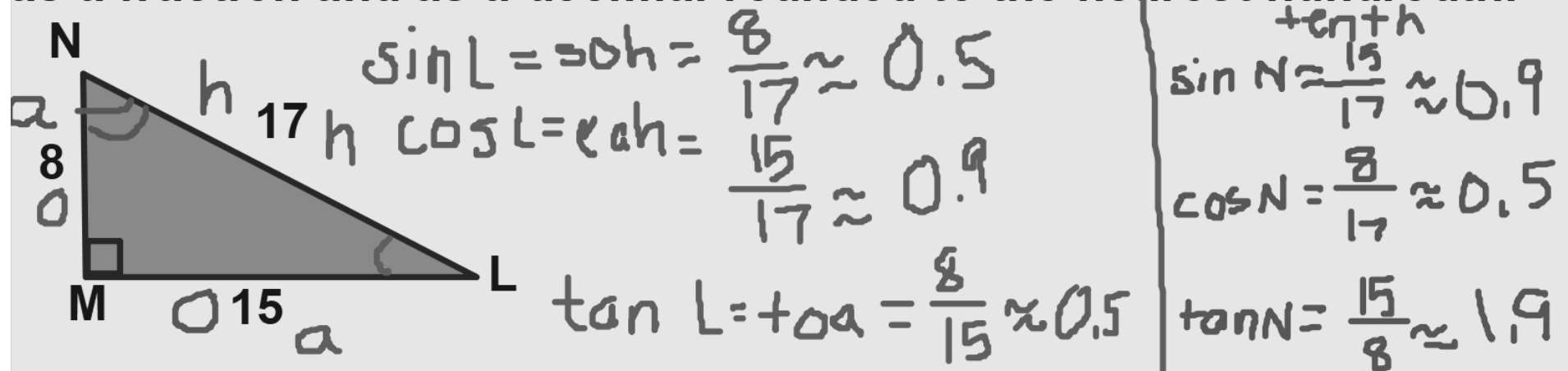


# UNIT 6 L 3 (SECTION 8-4): TRIGONOMETRY

OBJECTIVES: FIND THE TRIGONOMETRIC RATIOS USING RIGHT TRIANGLES.

SOLVE PROBLEMS USING TRIGONOMETRIC RATIOS.

Find  $\sin L$ ,  $\cos L$ ,  $\tan L$ ,  $\sin N$ ,  $\cos N$ , and  $\tan N$ . Express each ratio as a fraction and as a decimal rounded to the nearest hundredth.



Use a calculator to find each value. Round to the nearest tenth.

$$\tan 56^\circ \approx 1.5$$

$$\cos 80^\circ \approx 0.2$$

$$\sin 57^\circ \approx 0.8$$

$$\tan 45^\circ = 1$$



**UNIT 7 L 3 (SECTION 8-4): TRIGONOMETRY**  
**OBJECTIVES: FIND THE TRIGONOMETRIC RATIOS**  
**USING RIGHT TRIANGLES.**  
**SOLVE PROBLEMS USING TRIGONOMETRIC RATIOS.**

We can use trig ratios to find the missing measures of right triangles.

To find the measure of a missing angle, we can use the inverse of sine, cosine, and tangent. **[The angle is always behind the word]**

$\sin A = x$  to find the angle we use the equation:  $A = \sin^{-1}(x) \Leftrightarrow$  this  
is read as A equals the inverse sine of x.

$\cos A = y$  to find the angle we use the equation:  $A = \cos^{-1}(y)$

$\tan A = z$  to find the angle we use the equation:  $A = \tan^{-1}(z)$

# UNIT 6 L 3 (SECTION 8-4): TRIGONOMETRY

OBJECTIVES: FIND THE TRIGONOMETRIC RATIOS USING RIGHT TRIANGLES.

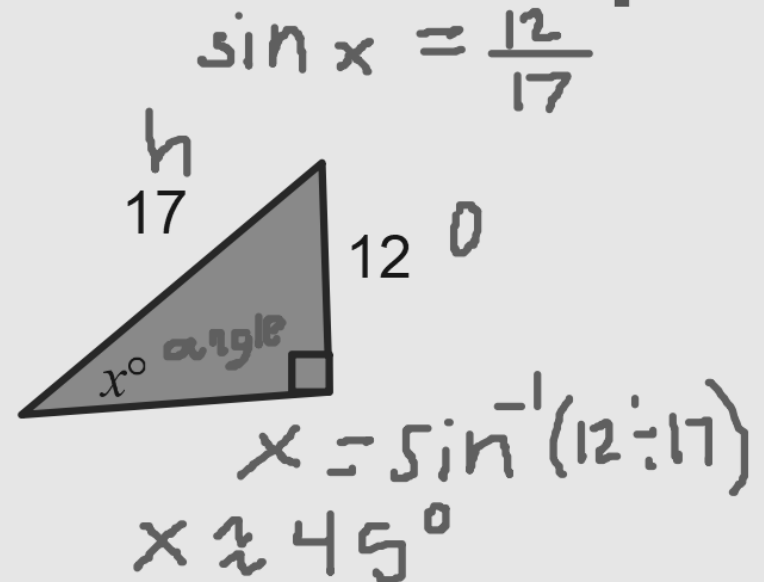
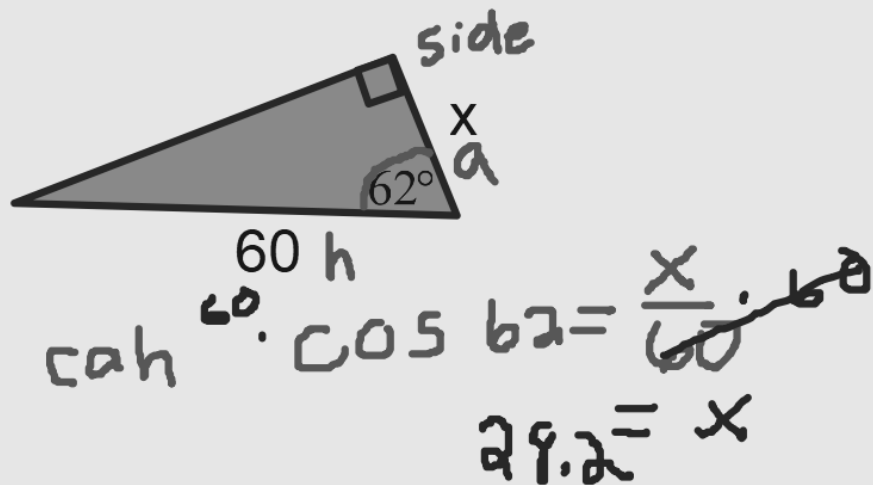
SOLVE PROBLEMS USING TRIGONOMETRIC RATIOS.

Find the measure of each angle to the nearest degree.

$$\tan A = 1.4176 \quad A = \tan^{-1}(1.4176) \approx 55^\circ$$

$$\sin B = 0.6307 \quad B = \sin^{-1}(0.6307) \approx 39^\circ$$

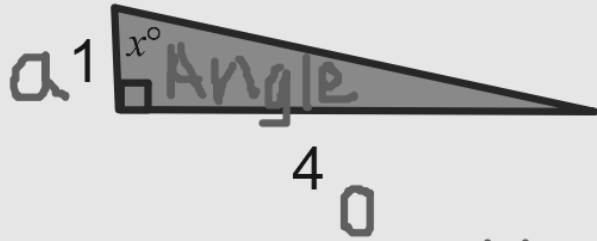
Find x. Round to the nearest tenth for a side and nearest degree for an angle measure. [set up equation and solve for x]



# UNIT 6 L 3 (SECTION 8-4): TRIGONOMETRY

OBJECTIVES: FIND THE TRIGONOMETRIC RATIOS USING RIGHT TRIANGLES.

SOLVE PROBLEMS USING TRIGONOMETRIC RATIOS.

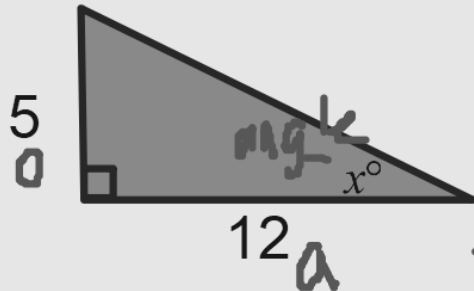


$$\tan x = \frac{4}{1}$$

$$\tan x = 4$$

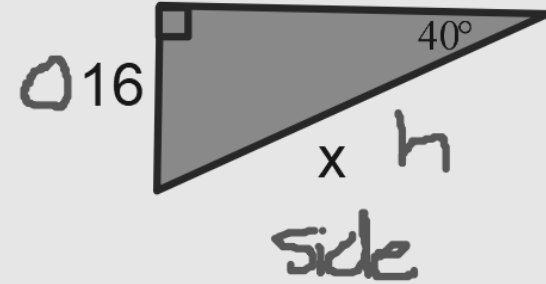
$$x = \tan^{-1}(4)$$

$$x \approx 76^\circ$$



$$\tan x = \frac{5}{12}$$

$$x = \tan^{-1}\left(\frac{5}{12}\right) \approx 23^\circ$$



$$\sin 40 = \frac{16}{x}$$

$$x = \frac{16}{\sin 40}$$

$$x \approx 24.9$$