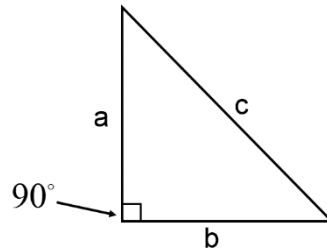
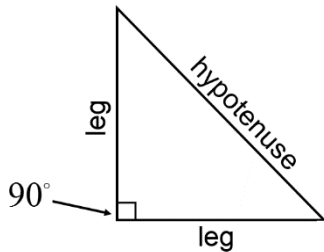


7B – Trigonometric Ratios

❖ Vocabulary, Formulas, Theories:

- **Right Triangle & Pythagorean Theorem**



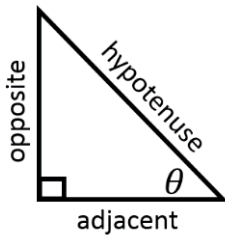
$$a^2 + b^2 = c^2$$

- **Theta (θ):** a symbol used to represent an angle.
- **Trigonometric Ratios:** ratios that are created using trigonometric functions and a right triangle.

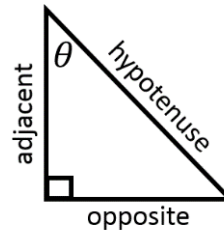
$$\sin\theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

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

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



- The “opposite” side and “adjacent” side depend on the location of the angle.
- The hypotenuse is always across from the 90 degree angle.



- **SOHCAHTOA:** a term used to help recall how to set up trigonometric ratios.

SOHCAHTOA

Soh Cah Toa

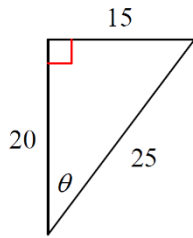
$$S = \frac{o}{h} \quad C = \frac{a}{h} \quad T = \frac{o}{a}$$

$$\sin\theta = \frac{\text{Opp}}{\text{Hyp}} \quad \cos\theta = \frac{\text{Adj}}{\text{Hyp}} \quad \tan\theta = \frac{\text{Opp}}{\text{Adj}}$$

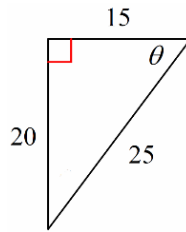
Video - ["Trigonometric Ratios - Example 1" - MathontheWeb \(7:39\)](#)

EX1) Given the triangle, determine the value of each trigonometric expression.

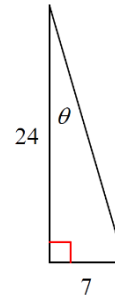
a) $\sin\theta = ?$ $\cos\theta = ?$ $\tan\theta = ?$



b) $\sin\theta = ?$ $\cos\theta = ?$ $\tan\theta = ?$



c) $\sin\theta = ?$



Video - ["Trigonometric Ratios - Example 2" - MathontheWeb \(3:35\)](#)

EX2) Set up a right $\triangle ABC$, where $\angle C$ is the right angle and $\angle A$ and $\angle B$ are the two acute angles. Lower case a , b , and c will be the sides across from their corresponding angles.

a) If $b = 24$ and $c = 25$, find $\cos(A)$.

b) If $a = 3$ and $b = 4$, find $\tan(B)$.

Video - ["Trigonometric Ratios - Example 3" - MathontheWeb \(8:09\)](#)

EX3) Given the equations, determine the value of each trigonometric expression.

a) If $\cos\theta = \frac{24}{25}$, what's the value of $\sin\theta$?

b) If $\sin\theta = \frac{3}{5}$, what's the value of $\tan\theta$?