Today's Learning Goal(s):

By the end of the class, I will be able to:

a) Identify the primary trig ratios.
b) Use the primary trig ratios to determine the measure of missing lengths and angles in right triangles.

MBF 3CI

Primary Trigonometric Ratios

Date: Sept. 7/17

Recall: A **rao** compares 2 or more quanes measured in the same units.

For example, the rao 6:5 may refer to 6 boys for every 5 girls in a math class, or the legs of a right triangle are in the rao 6 cm to 5 cm.

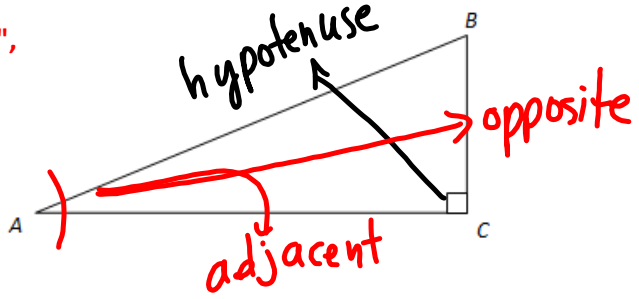
Recall: In right triangles, there are 3 primary trigonometric raos.
They are the **tangent rao**, **sine rao** and **cosine rao**.

The **tangent of an angle** is the rao of the side opposite to an angle, to the adjacent side to the angle.

The **sine of an angle** is the rao of the side opposite to an angle, to the hypotenuse.

The **cosine of an angle** is the rao of the side adjacent to an angle, to the hypotenuse.

We need to know the "reference angle", before we can label the sides.
Let's use angle A.



Here is an acronym that may help you remember the 3 primary trigonometric raos:

SOH $\sin = \frac{opp}{hyp}$

CAH $\cos = \frac{adj}{hyp}$

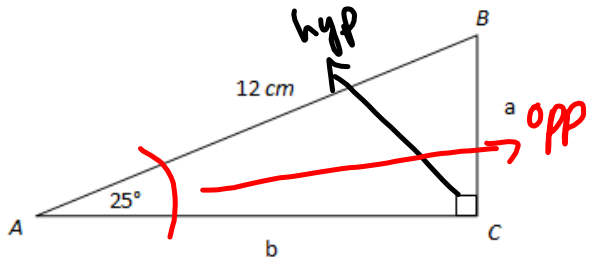
TOA $\tan = \frac{opp}{adj}$

Is your scientific calculator in DEGREE mode for angles?
Check for the following at the top of the display screen: D *or* DRG *or* DEG

You can always check using: sin 30° = 0.5

Ex1: **Solve for "a" to the nearest tenth.**

All diagrams are not drawn to scale.



SOH

$\sin 25° = \frac{a}{12}$

$12 \sin 25° = a$

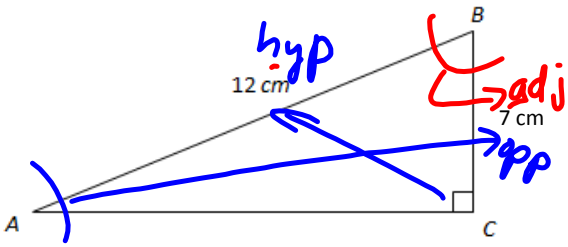
$a \doteq 5.07$

$\doteq 5.1$ cm

12 x 25 sin-

NOTICE: **Proper labelling has side length "lile a" is across from angle "big A".**

Ex. 2: **Determine the measure of $\angle A$ and $\angle B$ to the nearest tenth of a degree.**



SOH

$\sin A = \frac{7}{12}$

$A = \sin^{-1}\left(\frac{7}{12}\right)$

$\doteq 35.68$

$\doteq 35.7°$

CAH

$\cos B = \frac{7}{12}$

$B = \cos^{-1}\left(\frac{7}{12}\right)$

$\doteq 54.31$

$\doteq 54.3°$

Ex. 3: **Determine the measure of each angle to the nearest tenth of a degree.**

a) $\tan G = \frac{6}{11}$

$G = \tan^{-1}\left(\frac{6}{11}\right)$

$G \doteq 28.61$

$G \doteq 28.6°$

b) sin F = 0.7692

$F = \sin^{-1}(0.7692)$

$F \doteq 50.28$

$F \doteq 50.3°$

Review the learning goals. Were we successful today?

Homework: p. 14 # 2, 3, 5b, 6 – 8, 11, 12