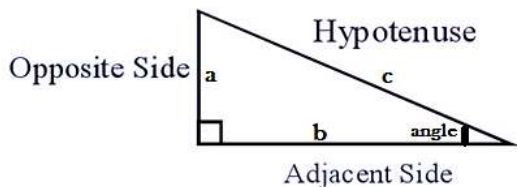


**WEEKLY HOME STUDY PACKAGE - WEEK 2 (12/07/21 – 16/07/21)**

<b>Subject</b>	<b>MATHEMATICS</b>	<b>Year/Level</b>	<b>10</b>
<b>Strand</b>	4 – Geometry		
<b>Sub-strand</b>	4.2 – Trigonometric Functions		
<b>Content Learning Outcome</b>	Discuss properties of Basic Trigonometric functions and use recommended calculator to calculate unknown angles.		

**Naming Sides of a Right Angled Triangle**

- The Greek letter  $\theta$  (theta) is used as the name of an angle.
- Using  $\theta$  the sides of the triangle can be named.
  - ✓ The hypotenuse is the longest side, opposite from the right angle (labeled as 'c').
  - ✓ The opposite side is on the opposite from the angle given,  $\theta$  (labeled as 'a').
  - ✓ The adjacent side is between the angle in question,  $\theta$  and the right angle (labeled as 'b').

$$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}; \sin \theta = \frac{a}{c}$$

$$\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}; \cos \theta = \frac{b}{c}$$

$$\tan \theta = \frac{\text{opposite}}{\text{adjacent}}; \tan \theta = \frac{a}{b}$$

In short SOH, CAH, TOA can be used.

**Using Calculator:****Example 1: Find  $\sin 30^\circ$** 

Using calculator, you press 'sin', press 30 (the screen must read  $\sin 30$ ) then press '='

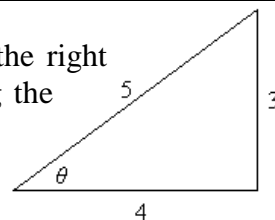
$$\sin 30^\circ = 0.5$$

**Example 2: Find  $\sin \theta = 1$** 

Using calculator, you press 'shift' then press 'sin', press 1 (the screen must read  $\sin^{-1} 1$ ) then press '='. Thus  $\theta = 90$

**Examples**

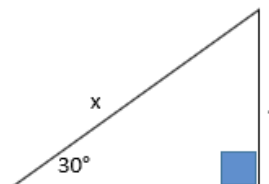
- Identify the sides of the right angled triangles using the angle  $\theta$ .



- 3 – opposite side;**  
**4 – adjacent side; 5 - hypotenuse**

- Given below is a right angled triangle with an angle of  $30^\circ$ .

- Which trigonometric ratio could be used to find the unknown side?



Using the angle  $30^\circ$ , the side labelled 4 is the opposite side and  $x$  is the hypotenuse.

We are interested in O and H

**SOH** CAH TOA; thus  $\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$

- Find the length of the unknown side.

$$\sin 30 = \frac{4}{x}$$

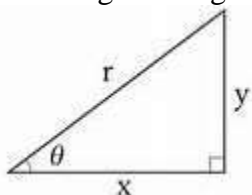
$$0.5 = \frac{4}{x}$$

$$x = \frac{4}{0.5}$$

$$x = 8$$

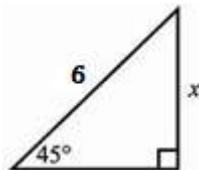
**Activity Question**

- Identify the sides of the right angled triangles using the angle  $\theta$ .

**(2 marks)**

- Given below is a right angled triangle with an angle of  $45^\circ$ .

Find the length of the side labelled,  $x$

**(2 marks)**