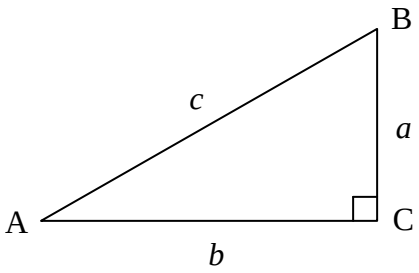
AChor/MFM2P **Name:** _____

Date: _____

Worksheet 3-2: Sine Ratio

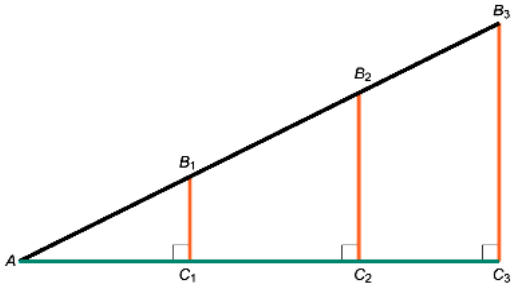
In a right triangle, the sine ratio of each non-right angle is given by:

$$\textbf{sine of angle} = \frac{\text{Length of the Side Opposite to Angle}}{\text{Length of the Hypotenuse}} = \frac{\text{opposite}}{\text{hypotenuse}}$$



sin A $= \frac{Opposite}{Hypotenuse} =$ _____ **sin B** $= \frac{Opposite}{Hypotenuse} =$ _____

The value of the sine ratio for a given angle depends only on the measure of the acute angle. The value of the sine ratio **does not depend on the size of the right triangle** in which the angle is found. A non-right or acute angle of a given measure has a **unique** sine ratio.



1. Find the sine ratio of a **given angle** to **4** decimal places.

Hint: Use the **SIN** [SIN] key on your calculator to find the sine ratio for the given angle.

(a) 40˚ **(b) 88˚** **(c) 55˚**

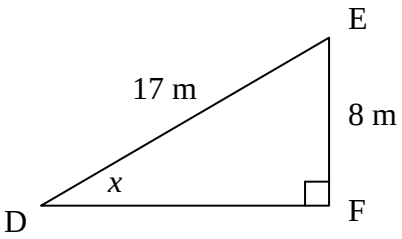
2. Find the angle to the **nearest degree** of a **given sine ratio**.

Hint: Use the **SIN**$^{-1}$ [2nd] [SIN] key on your calculator to find the degree measure of the angle for the given sine ratio.

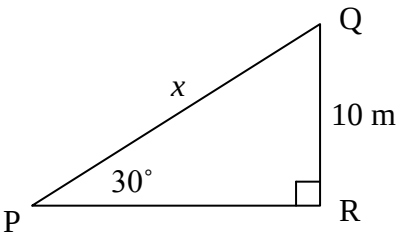
(a) Find ∠A when sin A = 0.7821 (b) Find ∠B when sin B = 0.5199

(c) Find ∠C when sin C = 0.9994 **(d) Find ∠D when sin D = 0.8191**

3. Find the angle using sine ratio. Correct to nearest degree.

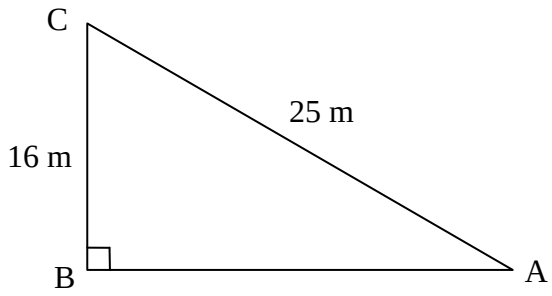


4. Find side length with a given angle. Correct to nearest unit.



Solve Right Triangles Using Sine Ratios

5. For ΔABC, find the unknown angles and side lengths. Correct answers to the nearest degree or metre.



Answers: **1.** (a) 0.6428, (b) 0.9994, (c) 0.8192**; 2.** (a) 51°, (b) 31°, (c) 88°, (d) 55°**; 3.** 28°**; 4.** 20 m**;**
5. $\angle A = 40°$, $\angle C = 50°$, $c = 19$ m