

When using your calculator to find, for example $\sin^{-1}(\frac{3}{4})$

Use **2nd**, **INV** or **SHIFT** before **sin**.

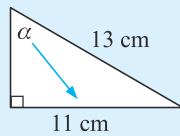
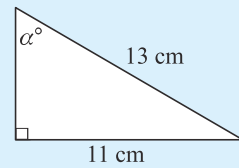
depending on what calculator you are using

2 Use your calculator to find the acute angle θ in degrees to 3 significant figures:

- a $\sin \theta = 0.9364$ b $\cos \theta = 0.2381$ c $\tan \theta = 1.7321$ d $\cos \theta = \frac{2}{7}$
 e $\sin \theta = \frac{1}{3}$ f $\tan \theta = \frac{14}{3}$ g $\sin \theta = \frac{\sqrt{3}}{11}$ h $\cos \theta = \frac{5}{\sqrt{37}}$

Example 7

Find α in degrees, correct to 3 significant figures:

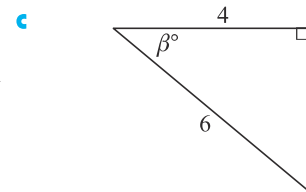
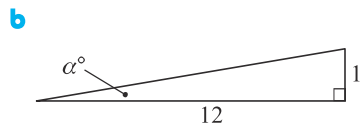
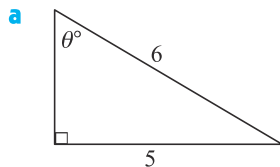


For angle α , OPP = 11, HYP = 13.

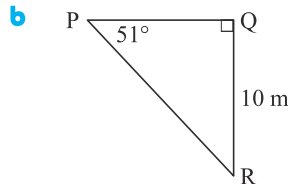
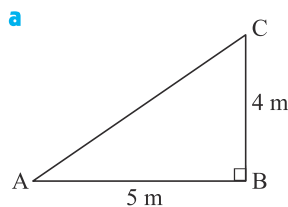
So, $\sin \alpha = \frac{11}{13}$
 $\therefore \alpha = \sin^{-1}(\frac{11}{13})$
 $\therefore \alpha \doteq 57.8$

Steps: DEG mode, **2nd** **sin** 11 **÷** 13 **)** **ENTER**

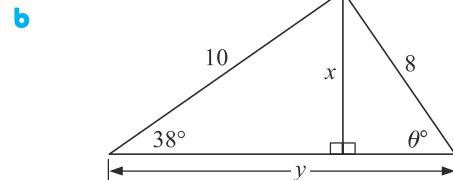
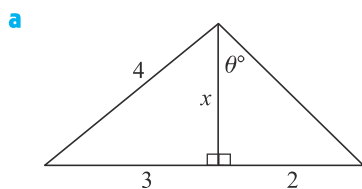
3 Find, correct to 3 significant figures, the measure of the unknown angle in each of the following:



4 Solve the following triangles, i.e., find all unknown sides and angles:



5 Find unknown sides and angles in the following figures:



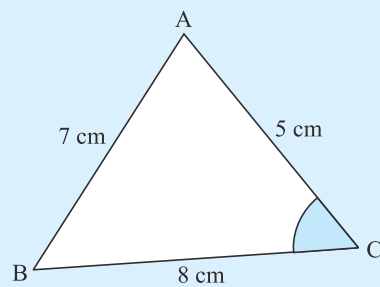
Rearrangement of the original cosine rule formulae can be used for angle finding if we know all three sides.

The formulae for finding the angles are:

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc} \quad \cos B = \frac{c^2 + a^2 - b^2}{2ca} \quad \cos C = \frac{a^2 + b^2 - c^2}{2ab}$$

Example 6

In triangle ABC, if AB = 7 cm, BC = 8 cm and CA = 5 cm, find the measure of angle BCA.



By the cosine rule:

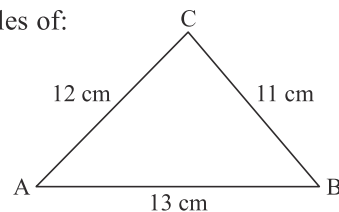
$$\cos C = \frac{(5^2 + 8^2 - 7^2)}{(2 \times 5 \times 8)}$$

$$\therefore C = \cos^{-1} \left(\frac{(5^2 + 8^2 - 7^2)}{(2 \times 5 \times 8)} \right)$$

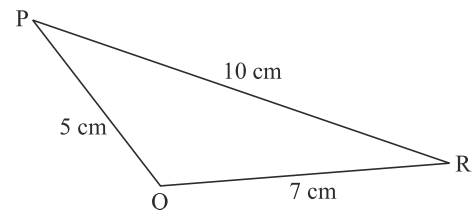
$$\therefore C = 60$$

So, angle BCA measures 60° .

- 2 Find the measure of all angles of:



- 3 Find the measure of obtuse angle PQR.



- 4 Find:

- the smallest angle of a triangle with sides 11 cm, 13 cm and 17 cm
- the largest angle of a triangle with sides 4 cm, 7 cm and 9 cm.

- 5 Find:

- $\cos \theta$ but not θ
- the value of x .

