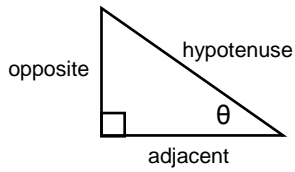


**SOH-CAH-TOA**

In right-angled triangles:



$$\sin\theta = \frac{\text{opp}}{\text{hyp}}$$

$$\cos\theta = \frac{\text{adj}}{\text{hyp}}$$

$$\tan\theta = \frac{\text{opp}}{\text{adj}}$$

If  $\sin\theta = 0.5$   
then  $\theta = \sin^{-1} 0.5$

On a calculator:

shift sin 0 . 5

so  $\theta = 30^\circ$

**Value ranges**

$$-1 \leq \sin\theta \leq 1$$

$$-1 \leq \cos\theta \leq 1$$

$$-\infty \leq \tan\theta \leq \infty$$

**Useful values**

$$\sin 30^\circ = \frac{1}{2}$$

$$\cos 30^\circ = \frac{\sqrt{3}}{2}$$

$$\tan 30^\circ = \frac{1}{\sqrt{3}}$$

$$\sin 45^\circ = \frac{1}{\sqrt{2}}$$

$$\cos 45^\circ = \frac{1}{\sqrt{2}}$$

$$\tan 45^\circ = 1$$

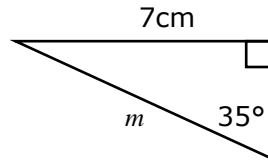
$$\sin 60^\circ = \frac{\sqrt{3}}{2}$$

$$\cos 60^\circ = \frac{1}{2}$$

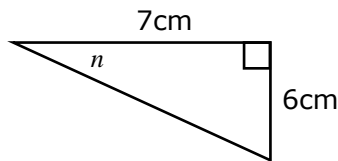
$$\tan 60^\circ = \sqrt{3}$$

Remember to give workings for your answers!

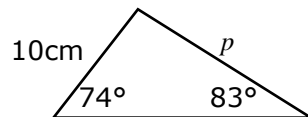
1. Calculate the value of m.



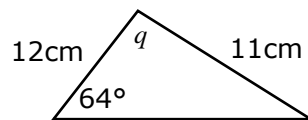
2. Calculate the value of n.



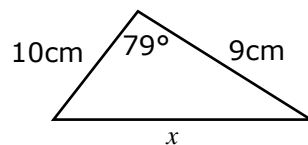
3. Calculate the value of p.



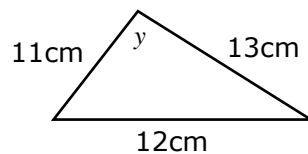
4. Calculate the value of q.



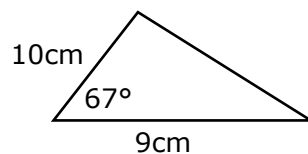
5. Calculate the value of x.



6. Calculate the value of y.



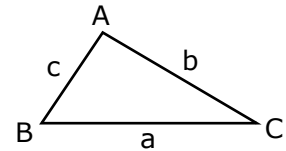
7. Calculate the area of the triangle.



Check your calculator is set to **degrees** (look for 'D' or 'DEG' on the display).

**Cosine rule**

For any triangle:



$$a^2 = b^2 + c^2 - 2bc \cos A$$

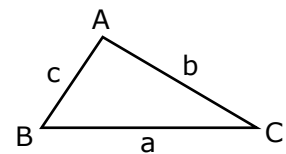
(need to memorise)

Rearrange to get:

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

**Sine rule**

For any triangle:



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

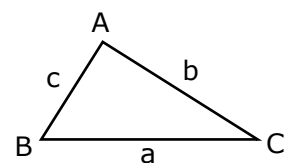
(need to memorise)

Rearrange to get:

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

**Area**

For any triangle:



$$\text{Area} = \frac{1}{2} ab \sin C$$

(need to memorise)

## Teaching notes

This resource contains a selection of questions accompanied by revision notes, all for GCSE levels

## Suggested uses

- ❖ Use as an individual revision sheet, homework, cover work, open book test, etc.
- ❖ Photocopy onto A3 and use as a poster during revision season.
- ❖ Laminate and tape to the desk for small group revision. You could create 'revision stations' with other Desktop revision resources on [www.teachitmaths.co.uk](http://www.teachitmaths.co.uk) (quick search: 'desktop'). In this case, the revision notes are colour coded to give students an indication of the GCSE grades they are working towards:
  - **blue**: Now Foundation, was Higher previously
  - **green**: Foundation (new to GCSE)
  - **red**: Higher

You can choose whether to reveal the grades before or after students complete the questions.

## Answers

1.	$\sin 35 = \frac{7}{m}$ $m = \frac{7}{\sin 35}$ $= 12.2\text{cm (3 s.f.)}$	5.	$x^2 = 10^2 + 9^2 - 2 \times 10 \times 9 \times \cos 79$ $= 181 - 180 \cos 79$ $x = 12.1\text{cm (3 s.f.)}$
2.	$\tan n = \frac{6}{7}$ $n = \tan^{-1}\left(\frac{6}{7}\right)$ $= 40.6^\circ \text{ (3 s.f.)}$	6.	$\cos y = \frac{11^2 + 13^2 - 12^2}{2 \times 11 \times 13}$ $y = \cos^{-1}\left(\frac{146}{286}\right)$ $= 59.3^\circ \text{ (3 s.f.)}$
3.	$\frac{p}{\sin 74} = \frac{10}{\sin 83}$ $p = \frac{10 \sin 74}{\sin 83}$ $= 9.68\text{cm (3 s.f.)}$	7.	$\text{Area} = \frac{1}{2} \times 10 \times 9 \times \sin 67$ $= 45 \sin 67$ $x = 41.4\text{cm}^2 \text{ (3 s.f.)}$
4.	$\frac{12}{\sin(116 - q)} = \frac{11}{\sin 64}$ $\sin(116 - q) = \frac{12 \sin 64}{11}$ $q = 116 - \sin^{-1}\left(\frac{12 \sin 64}{11}\right)$ $= 37.3^\circ \text{ (3 s.f.)}$		