

- A\*
- A
- B
- C
- D

# Trigonometry 2

You can use the trigonometric ratios to find the length of a missing side in a right-angled triangle. You need to know the length of another side and the size of one of the acute angles.

## Worked example

grade B

Calculate the length of the side marked  $a$ .  
Give your answer correct to 3 significant figures.

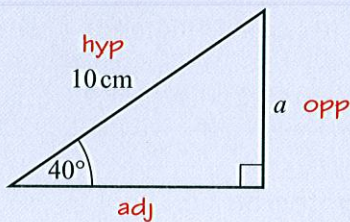


Diagram NOT accurately drawn

S<sub>H</sub>CA<sub>H</sub>T<sub>A</sub>

$$\sin x^\circ = \frac{\text{opp}}{\text{hyp}}$$

$$\sin 40^\circ = \frac{a}{10}$$

$$a = 10 \times \sin 40^\circ$$

$$= 6.42787\dots$$

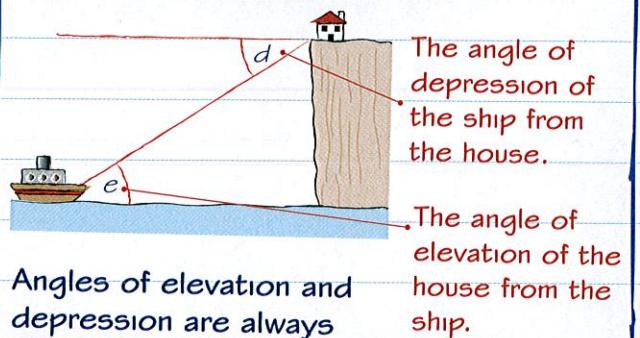
$$= 6.43 \text{ cm (to 3 s.f.)}$$

Label the sides of the triangle relative to the  $40^\circ$  angle. Write  $S^{\circ}_H C^A_H T^{\circ}_A$  and tick the pieces of information you have. You need to use  $S^{\circ}_H$  here.

Write the values you know in the rule and replace **opp** with  $a$ . You can solve this equation to find the value of  $a$ .

## Angles of elevation and depression

Some trigonometry questions will involve angles of elevation and depression.



The angle of depression of the ship from the house.

The angle of elevation of the house from the ship.

Angles of elevation and depression are always measured from the horizontal.

In this diagram,  $d = e$  because they are alternate angles.

Write down at least four figures of the calculator display before giving your final answer.

Check it!

Side  $a$  must be shorter than the hypotenuse. 6.43 cm looks about right. ✓

## Now try this

grade B

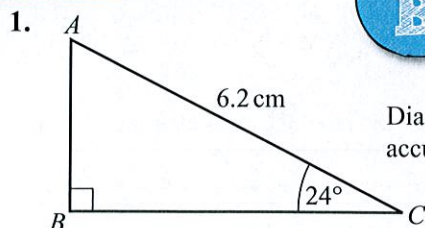


Diagram NOT accurately drawn

Angle  $ABC = 90^\circ$ .  
Angle  $ACB = 24^\circ$ .  
 $AC = 6.2 \text{ cm}$ .  
Calculate the length of  $BC$ .  
Give your answer correct to 3 significant figures. (3marks)

grade A

edexcel

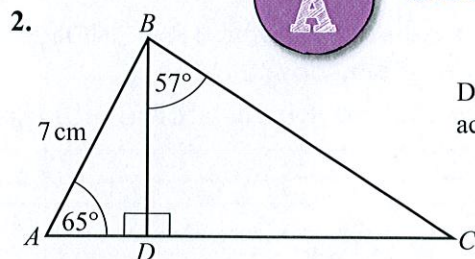


Diagram NOT accurately drawn

$ADC$  is a straight line with  $BD$  perpendicular to  $AC$ .  
 $AB = 7 \text{ cm}$ .  
Angle  $BAD = 65^\circ$ .  
Angle  $CBD = 57^\circ$ .  
Calculate the length of  $AC$ .  
Give your answer correct to 3 significant figures. (6 marks)