

Pythagoras' Theorem and Trigonometry

ANSWERS

Calculator | 30 minutes | Total marks: 30

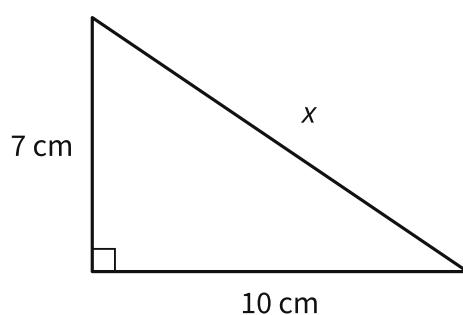
Name

Class

1

Work out the length of x .

Give your answer to 1 decimal place.



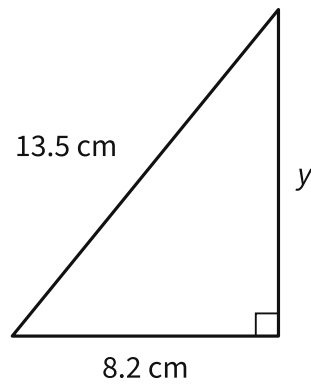
Not drawn accurately

$$7^2 + 10^2 = 149 \text{ (1)}$$
$$\sqrt{149} \text{ (1)}$$

Answer 12.2 (1) cm [3 marks]

2Work out the length of y .

Give your answer to 1 decimal place.



Not drawn accurately

$$13.5^2 - 8.2^2 = 115.01 \text{ (1)}$$

$$\sqrt{115.01} \text{ (1)}$$

Answer 10.7 (1) cm [3 marks]

3A is the point $(-2, 1)$ and B is the point $(4, 6)$

Work out the length of the line AB.

Give your answer to 2 decimal places.

$$6 \text{ across and } 5 \text{ up (1)}$$

$$6^2 + 5^2 = 61 \text{ (1)}$$

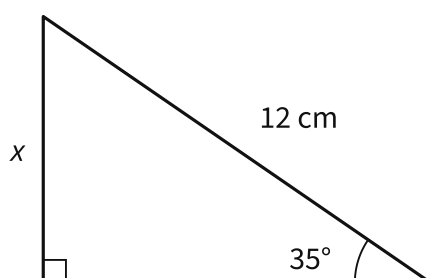
$$\sqrt{61}$$

Answer 7.81 (1) units [3 marks]

4

Work out the length of x .

Give your answer to 2 decimal places.



Not drawn accurately

$$\sin 35^\circ = \frac{x}{12} \quad (1)$$

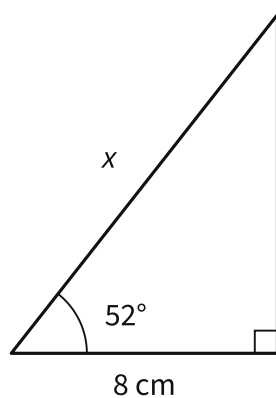
$$x = 12 \times \sin 35^\circ \quad (1)$$

Answer 6.88 (1) cm [3 marks]

5

Work out the length of x .

Give your answer to 1 decimal place.



Not drawn accurately

$$\cos 52^\circ = \frac{8}{x} \quad (1)$$

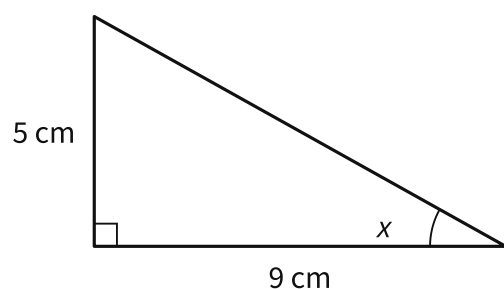
$$x = \frac{8}{\cos 52^\circ} \quad (1)$$

Answer 13.0 (1) cm [3 marks]

6

Work out the size of angle x .

Give your answer to 1 decimal place.



Not drawn accurately

$$\tan x = \frac{5}{9} \quad (1)$$

$$x = \tan^{-1}(5 \div 9) \quad (1)$$

Answer 29.1 (1)

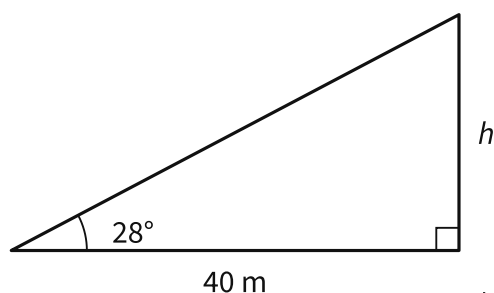
°

[3 marks]

7

Mia stands on level ground, 40 m from the base of a mast.

The angle of elevation of the top of the mast is 28°



Not drawn accurately

Work out the height, h , of the mast.

Give your answer to 1 decimal place.

$$\tan 28^\circ = \frac{h}{40} \quad (1)$$

$$h = 40 \times \tan 28^\circ \quad (1)$$

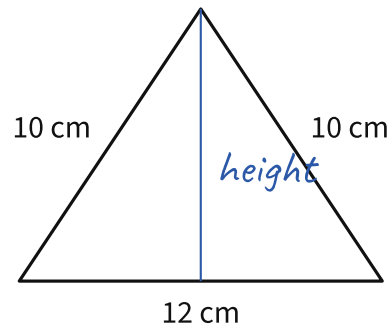
Answer 21.3 (1)

m

[3 marks]

8

Here is an isosceles triangle.



Not drawn accurately

Work out the area of the triangle.

half the base is 6 (1)

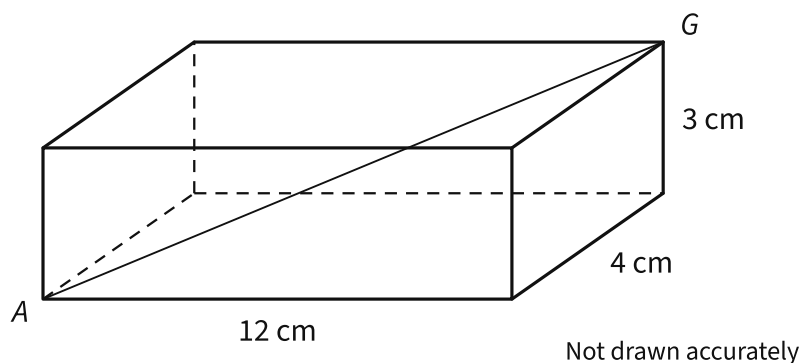
height = $\sqrt{10^2 - 6^2} = 8$ (1)

$\frac{1}{2} \times 12 \times 8$ (1)

Answer 48 (1) cm² [4 marks]

9

The diagram shows a cuboid.



- (a) Work out the length of the diagonal AG .

$$12^2 + 4^2 + 3^2 \quad (1)$$

$$= 169 \quad (1)$$

Answer 13 (1) cm [3 marks]

- (b) Work out the angle between AG and the base of the cuboid.

Give your answer to 1 decimal place.

$$\sin \theta = \frac{3}{13} \quad (1)$$

Answer 13.3 (1) ° [2 marks]

Question	Topic	RAG
1	I can use Pythagoras' theorem to find the hypotenuse	
2	I can use Pythagoras' theorem to find a shorter side	
3	I can find the length of a line between two points	
4	I can use trigonometry to find a side	
5	I can use trigonometry when the unknown is the denominator	
6	I can use trigonometry to find an angle	
7	I can solve a problem with an angle of elevation	
8	I can use Pythagoras' theorem in a problem	
9	I can use Pythagoras' theorem and trigonometry in 3D	