

Pythagoras

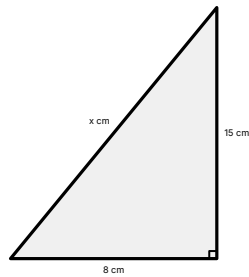
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NAME _____

DATE _____

1 Here is a right-angled triangle.

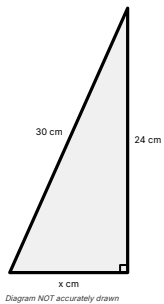
 CALCULATOR 3 MARKS



Calculate the length of the side marked x .

2 Here is a right-angled triangle.

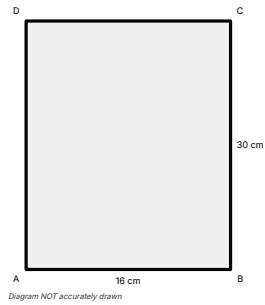
 CALCULATOR 3 MARKS



Work out the length of the side marked x .

3 $ABCD$ is a rectangle.

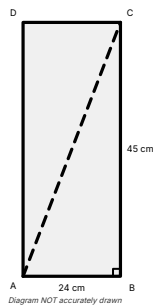
 CALCULATOR 3 MARKS



Work out the length of the diagonal AC .

4 $ABCD$ is a rectangle. The dashed line is the diagonal AC .

 CALCULATOR 5 MARKS



- (a) Calculate the length of AC .
- (b) Calculate the area of triangle ABC .

5 The diagram shows a right-angled triangle.

 CALCULATOR 3 MARKS

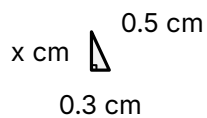
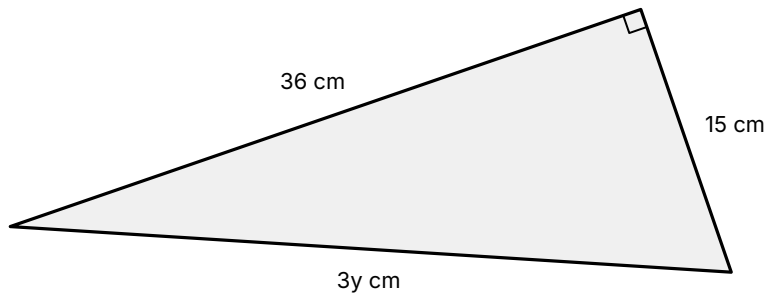


Diagram NOT accurately drawn

Use Pythagoras' theorem to show that $x = 0.4$

6 Here is a right-angled triangle.

 CALCULATOR 2 MARKS



Kai works out that $y = 13$.

Mel says, "If $y = 13$, the hypotenuse would be shorter than both of the other sides, so y cannot be 13."

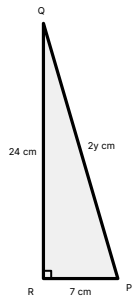
Is Mel correct?

Tick a box. Yes / No

Give a reason for your answer.

7 The diagram shows a right-angled triangle.

 CALCULATOR 1 MARK



Noah is using Pythagoras' theorem to find the value of y . Here is his working.

$$PQ^2 = RP^2 + QR^2$$

$$2y^2 = 7^2 + 24^2$$

$$2y^2 = 49 + 576 = 625$$

$$y = \sqrt{\frac{625}{2}}$$

Here are four statements about Noah's working.

1. Noah has squared only part of the length of the hypotenuse. 2. Noah has added the two shorter sides instead of square rooting the total of their squares. 3. Noah has treated one of the shorter sides as the hypotenuse. 4. Noah has made a slip when adding two numbers.

What mistake has Noah made? Write down the number of the correct statement.

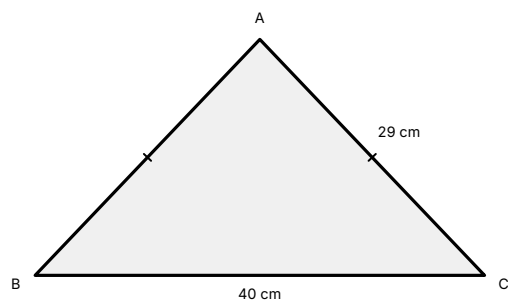
8 A triangle has sides of length 0.6 cm, 2.5 cm and 2.4 cm.

 CALCULATOR 3 MARKS

Is the triangle right-angled? You must show your working.

9 ABC is an isosceles triangle with $AB = AC$.

 CALCULATOR 5 MARKS



- (a) Work out the perpendicular height of the triangle from A to BC .
(b) Work out the area of triangle ABC .

10 Amara sails her yacht 8 km due west, then turns and sails 6 km due north.

 CALCULATOR 3 MARKS

Calculate how far she is from the starting point.

1	17 cm	2	18 cm
3	34 cm	4	(a) 51 cm (b) 540 cm ²
5	$x^2 = 0.25 - 0.09 = 0.16 = 0.4^2$, so $x = 0.4$ cm	6	No. With $y = 13$ the label $3y$ cm gives a hypotenuse of 39 cm, which is longer than the other sides, 15 cm and 36 cm.
7	Statement 1: Noah has squared only part of the length of the hypotenuse.	8	No: $0.6^2 + 2.4^2 = 6.12$ and $2.5^2 = 6.25$, and 6.12 is less than 6.25, so the angle opposite the longest side is more than 90° and the triangle is not right-angled
9	(a) 21 cm (b) 420 cm ²	10	10 km