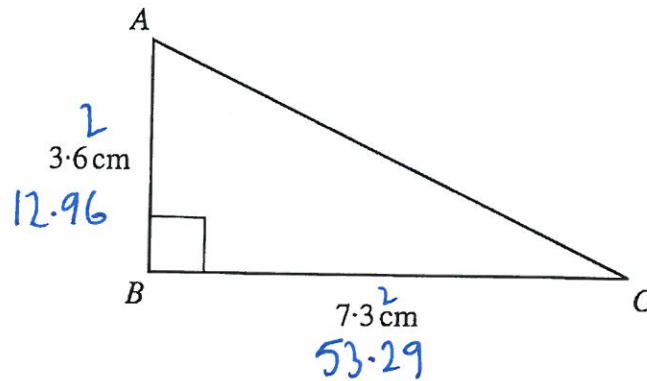


Pythagoras' THEOREM

①



Find the length of AC.

Give your answer to an appropriate degree of accuracy.

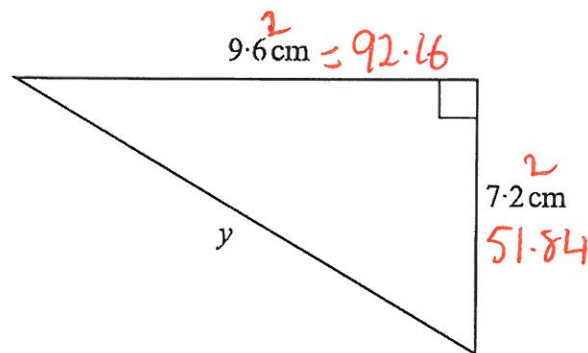
$$AC^2 = 12.96 + 53.29$$

$$AC^2 = 66.25$$

$$AC = \sqrt{66.25} = 8.1 \text{ cm}$$

[4]

②



Calculate the length of the side marked y.

$$y^2 = 92.16 + 51.84$$

$$y^2 = 144$$

$$y = \sqrt{144} = 12 \text{ cm}$$

[3]

3

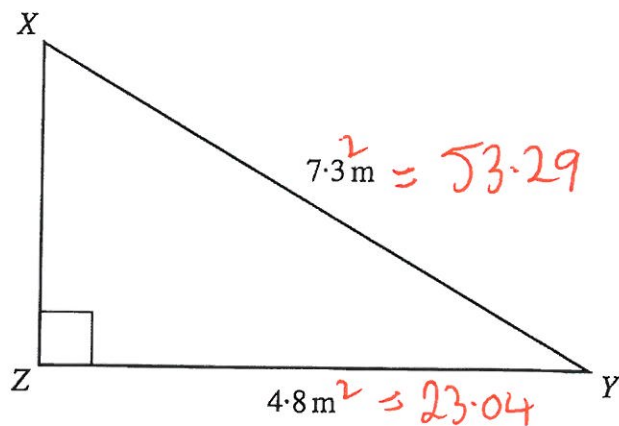


Diagram not drawn to scale.

XYZ is a right-angled triangle in which $XY = 7.3$ m and $ZY = 4.8$ m. Calculate the length of XZ.

$$XZ^2 = 53.29 - 23.04$$

$$XZ^2 = 30.25$$

$$XZ = \sqrt{30.25} = 5.5 \text{ m}$$

(3)

4

A ladder which is 7.6 m long is placed against a vertical wall. The foot of the ladder rests on a horizontal floor and is 2.4 m away from the bottom of the wall. Calculate how far the top of the ladder is above the floor.

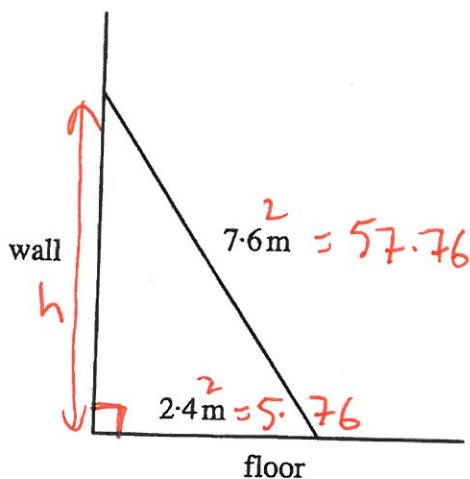


Diagram not drawn to scale.

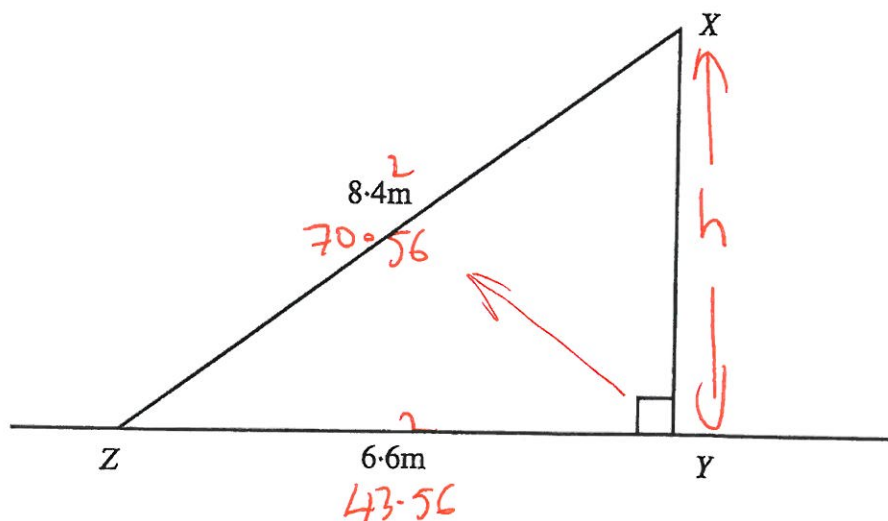
$$h^2 = 57.76 - 5.76$$

$$h^2 = 52$$

$$h = \sqrt{52} = 7.2 \text{ m}$$

5

One end of a piece of rope 8.4 m long is tied to the top of a vertical pole XY and the other end is tied to the ground at the point Z which is at a horizontal distance of 6.6 m from the foot of the pole. Calculate the height of the pole.



$$h^2 = 70.56 - 43.56$$

$$h^2 = 27$$

$$h = \sqrt{27} = 5.2 \text{ m}$$

6

The diameter of a circle, AB, is of length 8.7 cm, BC has length 5.4 cm and $\angle ACB = 90^\circ$. Calculate the length of AC.

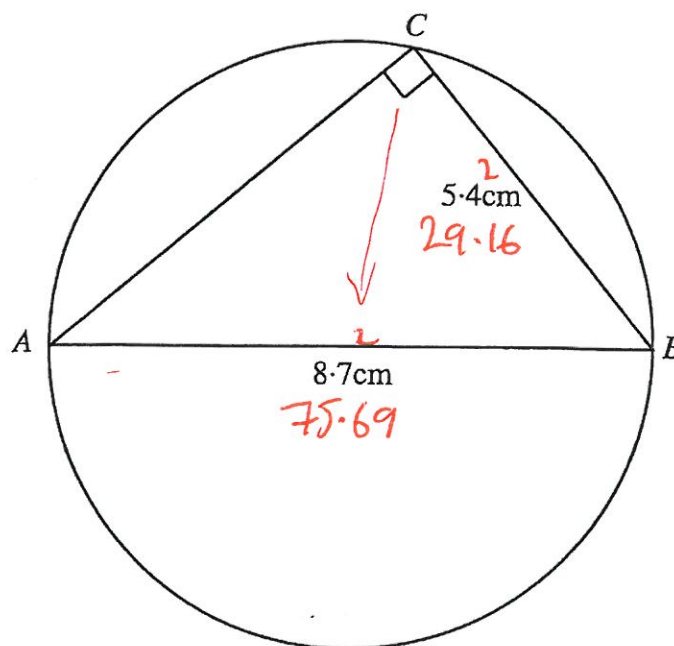


Diagram not drawn to scale.

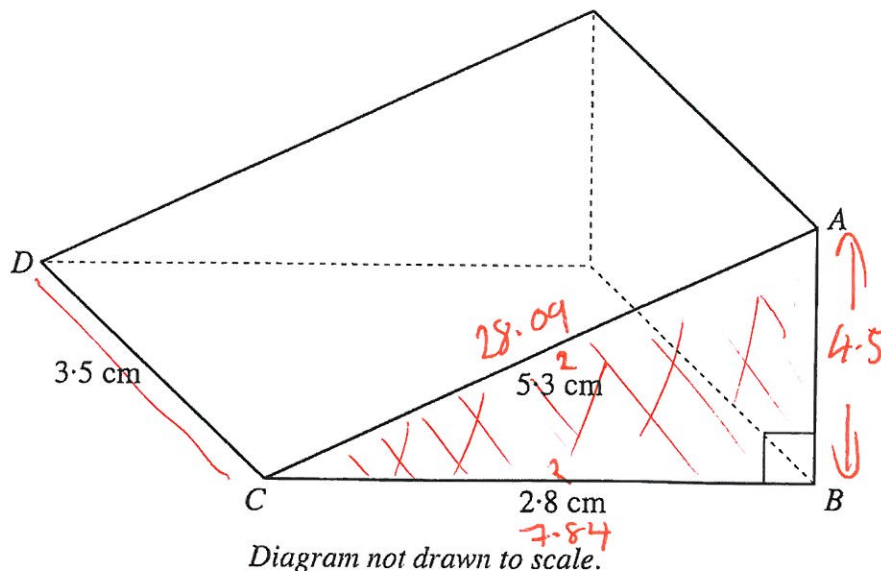
$$AC^2 = 75.69 - 29.16$$

$$AC^2 = 46.53$$

$$AC = \sqrt{46.53} = 6.8 \text{ cm}$$

(7)

A prism has a uniform cross-section in the shape of a right-angled triangle ABC .



Given that $\angle ABC = 90^\circ$, $CB = 2.8$ cm, $CA = 5.3$ cm and that the length, CD , of the prism is 3.5 cm, calculate the volume of the prism.

$$AB^2 = 28.09 - 7.84$$

$$AB^2 = 20.25$$

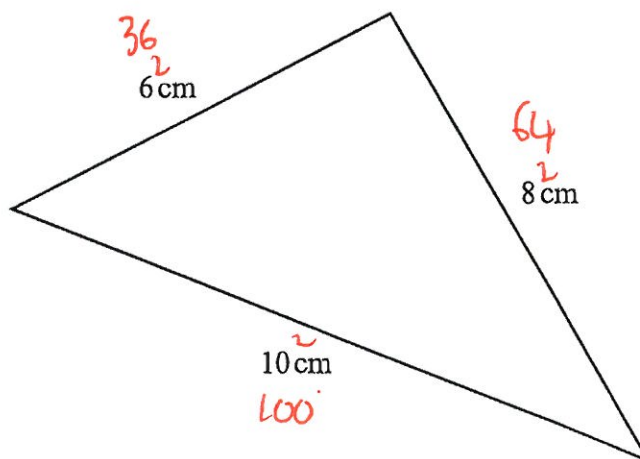
$$AB = \sqrt{20.25} = 4.5 \text{ cm}$$

$$\text{Area of } \Delta = \frac{1}{2} \times 2.8 \times 4.5 = 6.3 \text{ cm}^2$$

$$\text{Volume} = 6.3 \times 3.5 = 22.05 \text{ cm}^3$$

(6)

(8)



Show, by calculation, that the triangle drawn above is a right-angled triangle.

$$100 = 36 + 64 \quad \checkmark$$

Pythagoras Rule applies

So it is a right angled Δ .