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# Pythagoras

## N5 Maths Exam Questions

Source: 2019 P2 Q11 N5 Maths

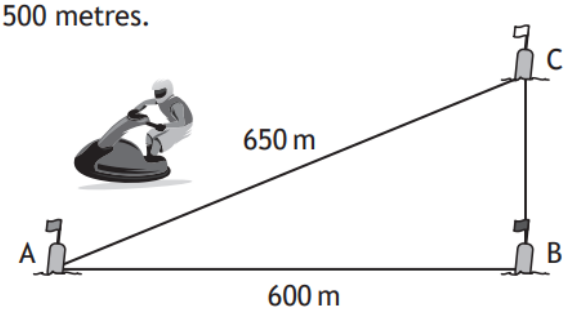
(1)

The diagram shows the course for a jet-ski race.

The course is indicated by markers A, B and C.

The total length of the course is 1500 metres.

- B is 600 metres from A
- C is 650 metres from A
- C is due north of B




Determine whether B is due east of A.

**Justify your answer.**

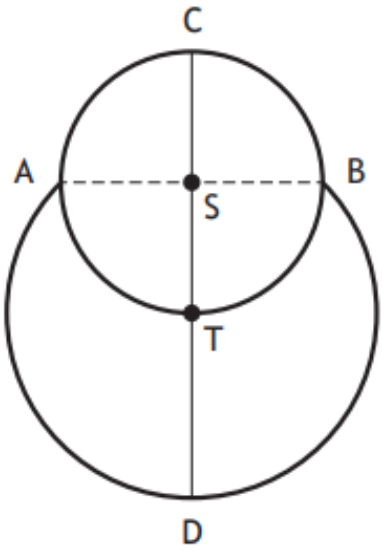
Answer: Yes, as angle is a right angle (prove using the 'Converse of Pythagoras')

Source: 2019 P2 Q118 N5 Maths

(2)

The picture shows a cartoon snowman.

The diagram below represents the snowman.




- The head is a small circle, centre S, with diameter 15 centimetres
- The body is part of a larger circle, centre T
- The point T lies on the circumference of the small circle
- The points A and B lie on the circumferences of both circles

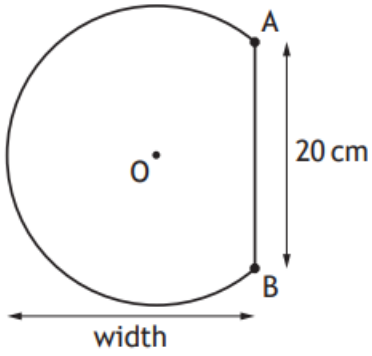
Calculate CD, the height of the snowman.

Answer: $Height\ of\ snowman = 25.6\ cm$

Source: 2018 P2 Q12 N5 Maths

(3)

The shape below is part of a circle, centre O.




The circle has radius 13 centimetres.

AB is a chord of length 20 centimetres.

Calculate the width of the shape.

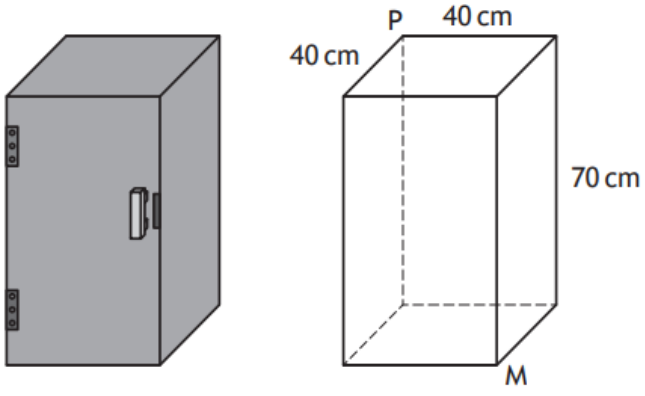
Answer: $Width = 21.3\ cm$

Source: 2018 P2 Q16 N5 Maths

(4)

Chris wants to store his umbrella in a locker.

The locker is a cuboid with internal dimensions of length 40 centimetres, breadth 40 centimetres and height 70 centimetres.




The umbrella is 85 centimetres long.

He thinks it will fit into the locker from corner P to corner M.

Is he correct?

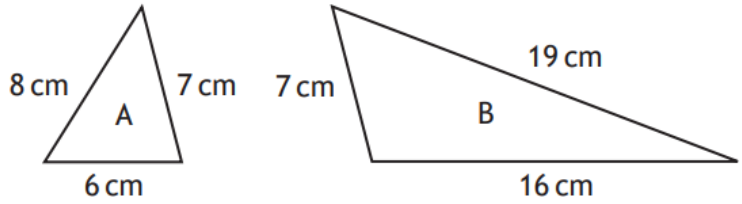
**Justify your answer.**

Answer: $Yes, since\ 85 < 90$

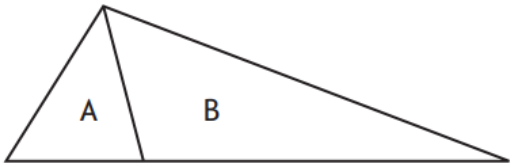
Source: 2017 P2 Q7 N5 Maths

(5)

Triangles A and B are shown below.




The triangles are placed together to form the larger triangle shown below.




Is this larger triangle right-angled?

**Justify your answer.**

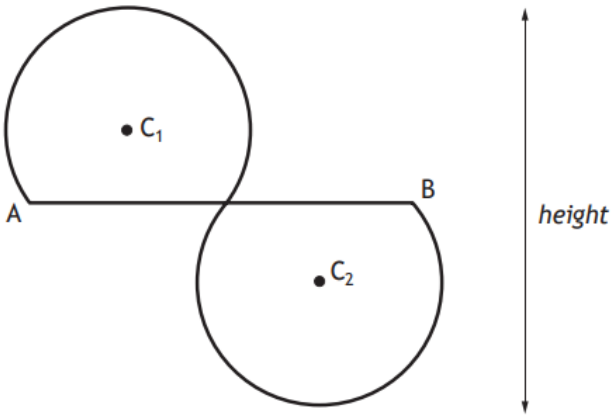
Answer: $No - Use\ the\ Converse\ of\ Pythagoras$

Source: 2017 P2 Q13 N5 Maths

(6)

Two identical shapes are used to form a logo.

Each shape is part of a circle.




- The circles have centres $C_1$ and $C_2$.
- The radius of each circle is 14 centimetres.
- The logo has half-turn symmetry about the mid-point of AB.
- AB is 48 centimetres long.

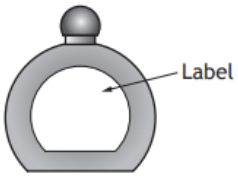
Calculate the height of the logo.

Answer: $Height = 42.4\ cm$

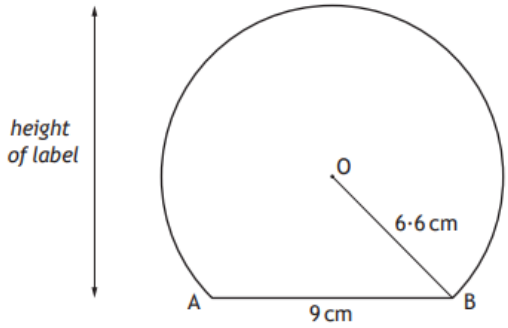
Source: 2016 P2 Q15 N5 Maths

(7)

This perfume bottle has a label in the shape of part of a circle.




A diagram of the label is shown below.




- The centre of the circle is O.
- The chord AB is 9 centimetres.
- The radius OB is 6·6 centimetres.

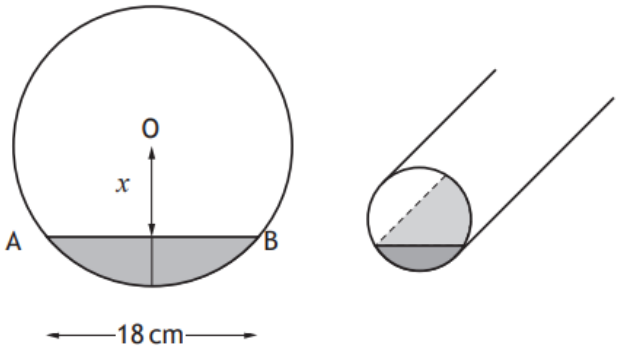
Find the height of the label.

Answer: $Height = 11.4\ cm$

Source: Specimen P1 Q12 N5 Maths

(8)

A cylindrical pipe has water in it as shown.




The depth of the water at the deepest point is 5 centimetres.

The width of the water surface, AB, is 18 centimetres.

The radius of the pipe is $r$ centimetres.

The distance from the centre, O, of the pipe to the water surface is $x$ centimetres.

(a) Write down an expression for $x$ in terms of $r$.

(b) Calculate $r$, the radius of the pipe.

Answers: $(a)\ x = r - 5$ $(b)\ r = 10.6\ cm$