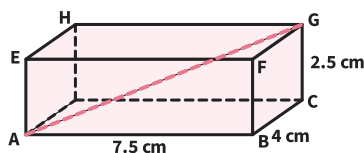


1

Find the length AG to 3 significant figures.



$$AC^2 = 7.5^2 + 4^2 = 72.25$$

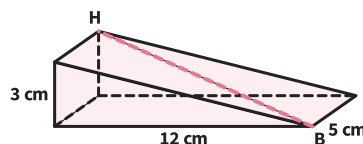
$$AG^2 = 72.25 + 2.5^2$$

$$8.86 \text{ cm}$$

Answer

2

A wedge has a rectangular base 12 cm by 5 cm and a back that is 3 cm high. Find the length BH to 3 significant figures.



$$BD^2 = 12^2 + 5^2 = 169$$

$$BH^2 = 169 + 3^2 = 178$$

$$13.3 \text{ cm}$$

Answer

3

A box has a square base and is 10 cm tall. The longest straight line inside it is 14 cm. Find the length of a side of the base, to 3 significant figures.

$$x^2 + x^2 + 10^2 = 14^2$$

$$2x^2 = 96, x^2 = 48$$

$$6.93 \text{ cm}$$

Answer

4

A sports hall is 40 m long, 20 m wide and 9 m high. A drone flies in a straight line at 3 m/s from one corner of the floor to the opposite corner of the ceiling. How long does it take, to 1 decimal place?

$$\sqrt{40^2 + 20^2 + 9^2} = 45.62 \text{ m}$$

$$\text{time} = 45.62 \div 3$$

$$15.2 \text{ s}$$

Answer

5

Ravi finds the diagonal of a 6 cm by 4 cm by 3 cm box. He writes $\sqrt{6^2 + 4^2} + 3 = 10.2$ cm. Explain his mistake and find the diagonal to 3 significant figures.

he added the 3 instead of squaring it

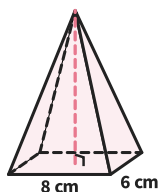
$$\sqrt{52^2 + 3^2} = 61$$

$$7.81 \text{ cm}$$

Answer

6

The top of this pyramid is 12 cm directly above the centre of its rectangular base. Find the length of a sloping edge.



$$\text{centre to a corner} = \frac{1}{2}\sqrt{8^2 + 6^2} = 5$$

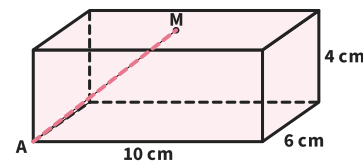
$$\sqrt{5^2 + 12^2} = 13$$

$$13 \text{ cm}$$

Answer

7

M is the centre of the top of the box. Find the distance AM to 3 significant figures.



across: 5 cm, back: 3 cm, up: 4 cm

$$\sqrt{5^2 + 3^2 + 4^2} = \sqrt{50}$$

$$7.07 \text{ cm}$$

Answer

8

Explain why the diagonal from one corner of a cuboid to the opposite corner is always longer than the diagonal of any face of the cuboid.

$$\text{diagonal}^2 = \text{face diagonal}^2 + \text{edge}^2$$

the hypotenuse is the longest side

it is the hypotenuse

Reason