

8300

GCSE MATHEMATICS

Foundation and Higher tier – Questions by Topic

Geometry

Volume – Finding the volume of prisms

v1.0

Name _____

Materials

For this paper you must have:

- Mathematical instruments
- A calculator



Information

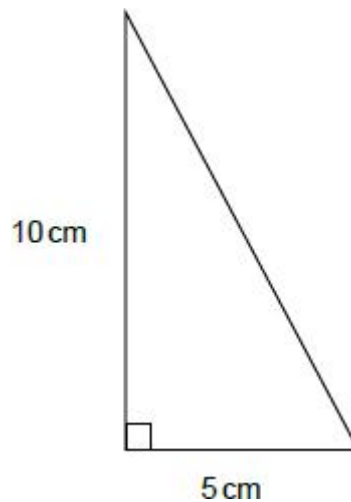
- The marks for questions are shown in brackets

Advice

- In all calculations, show clearly how you work out your answer

Q1.

This diagram shows the cross section of a triangular prism of length 12 cm.



Not drawn accurately

Jasper wants to work out the volume of the triangular prism.

He writes,

$$\text{Volume} = 10 \times 5 \times 12$$

$$\text{Volume} = 600 \text{ cm}$$

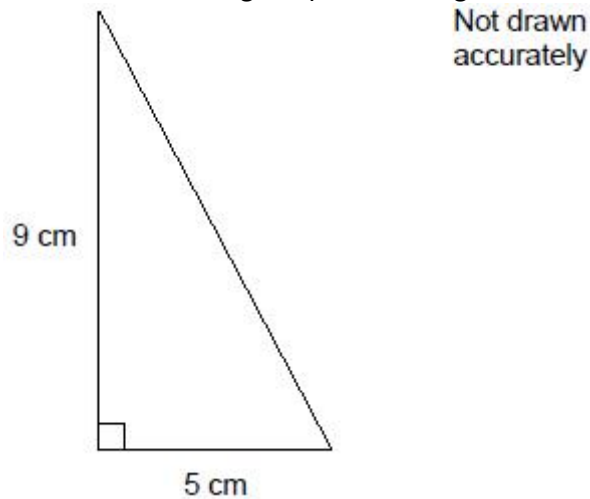
His method isn't fully correct.

Write down the correct solution.

(Total 3 marks)

Q2.

This triangle is the cross section of a triangular prism of length 10 cm.



Ali writes,

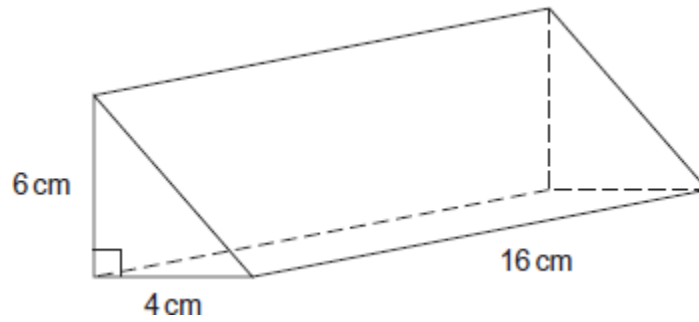
$$\text{Volume} = 9 \times 5 \times 10$$

$$\text{Volume} = 450 \text{ cm}$$

Check his working and write the correct solution.

(Total 3 marks)

Q3.

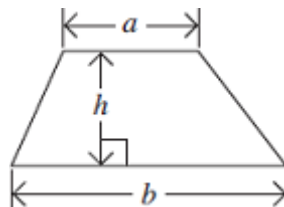


Calculate the volume of the prism.
State the units of your answer.

(Total 4 marks)

Q4.

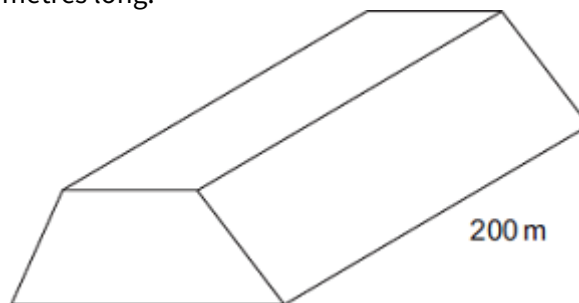
In the trapezium, $a = 6.5$ m, $b = 8.3$ m and $h = 3.2$ m



Not drawn accurately

- (a) Work out the area of the trapezium.
- (b) The trapezium is the cross-section of a tunnel.
The tunnel is 200 metres long.

(2)



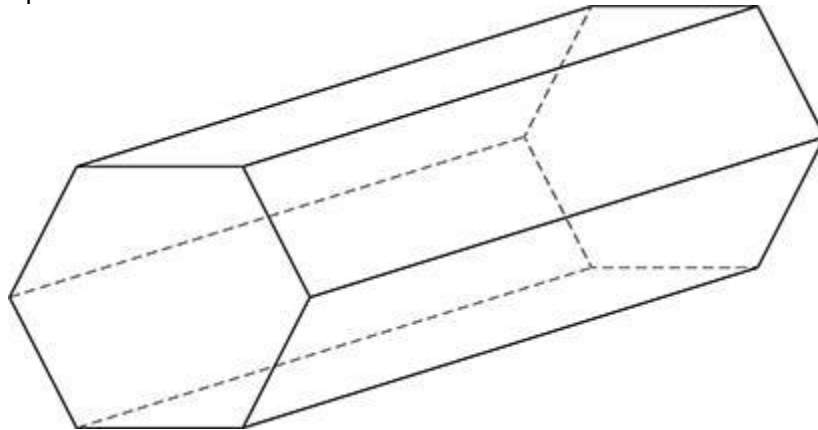
Work out the volume of the tunnel.

(2)
(Total 4 marks)

Volume – Finding the volume of prisms – Cross topic questions

Q5.

Here is a solid prism.



- (a) How many faces does the prism have?

(1)

- (b) The prism has
volume = 3500 cm^3
and
length = 20 cm

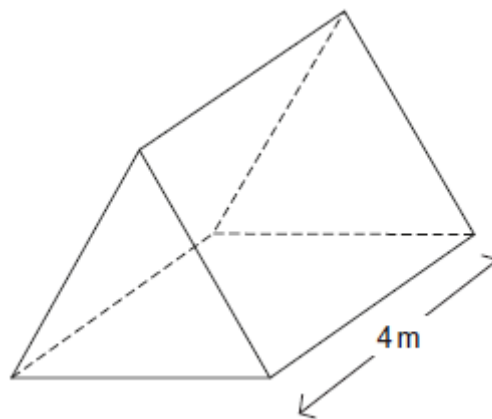
Work out the area of the cross-section of the prism.

(2)

(Total 3 marks)

Q6.

A tent is in the shape of a triangular prism.



The length of the tent is 4 metres.

The volume is 8 m^3

The cross-section of the tent is an **equilateral** triangle.

Shaun is 1.95 metres tall.

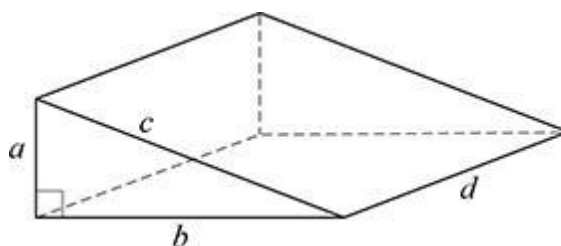
Can he stand at the highest part of the tent without having to bend over?

You **must** show your working.

(Total 5 marks)

Q7.(H)

Here is a right-angled triangular prism.



The ratio of the edges is $a : b : c : d = 3 : 4 : 5 : 12$

The **volume** of the prism is 1125 cm^3

Work out the total length of **all** of the edges of the prism.

(Total 5 marks)

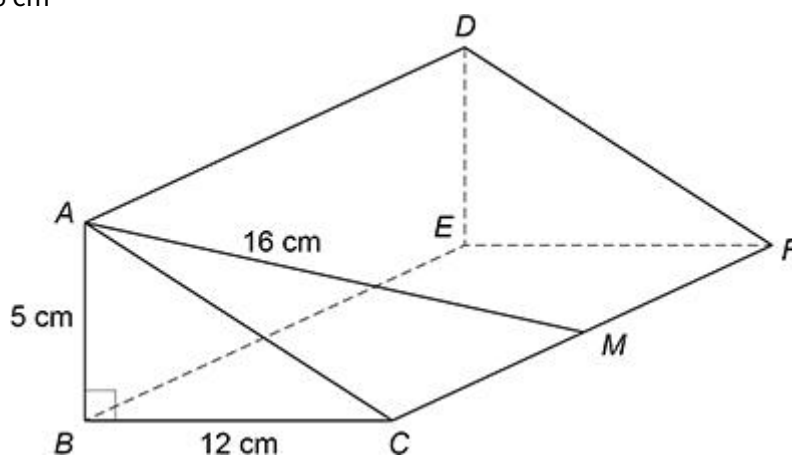
Q8.(H)

Right-angled triangle ABC is the cross section of a prism.

$AB = 5 \text{ cm}$ $BC = 12 \text{ cm}$

M is the midpoint of CF .

$AM = 16 \text{ cm}$



Work out the volume of the prism.

(Total 4 marks)