

Volume of Prisms

Mark Scheme

Level	GCSE
Subject	Maths
Exam Board	Edexcel GCSE
Topic	Volume of Prisms
Grade Level	Grade 4
Booklet	Mark Scheme

Time Allowed: 43 minutes

Score: /36

Percentage: /100

Grade Boundaries:

1. Here is a cuboid.

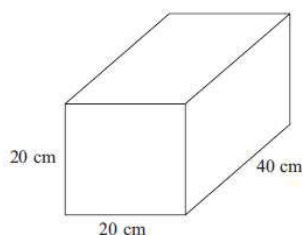


Diagram NOT
accurately drawn

Work out the volume of the cuboid.

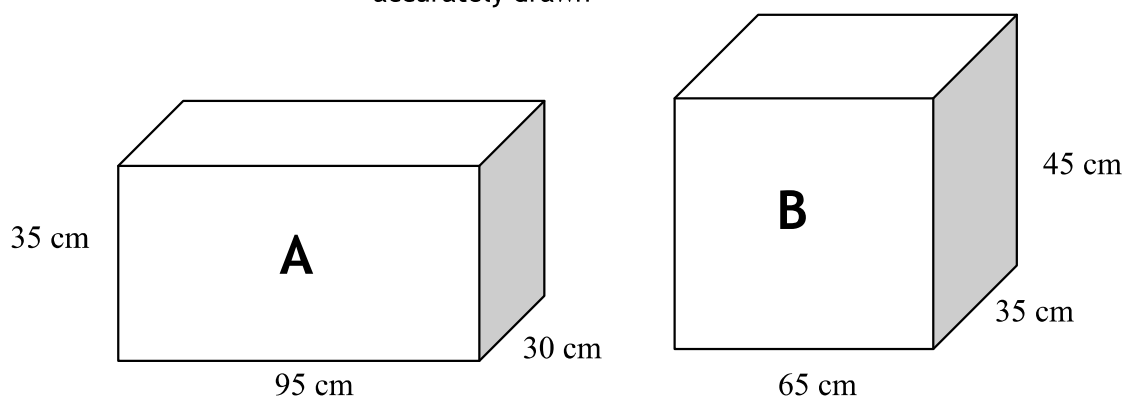
$$20 \times 20 \times 40$$

$$16000 \text{ cm}^3$$

(3 marks)

- *2. The diagram shows two fish tanks, each in the shape of a cuboid.

Diagram NOT
accurately drawn



Finley fills both fish tanks with water.

Which fish tank holds the most water?

You must show all your calculations.

$$\text{Volume of A} = 35 \times 95 \times 30 = 99750 \text{ cm}^3$$

$$\text{Volume of B} = 65 \times 45 \times 35 = 102375 \text{ cm}^3$$

Tank B will hold more water as the shape has a greater volume.

(4 marks)

3. The diagram shows a prism.

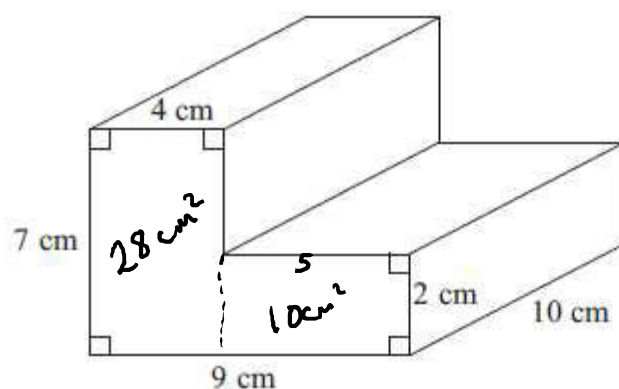


Diagram NOT
accurately drawn

Work out the volume of the prism.

$$\text{Volume} = \text{area of cross section} \times \text{length}$$

$$= 38 \times 10$$

$$= 380 \text{ cm}^3$$

.....380.....cm³

(4 marks)

4. Here is a solid prism.

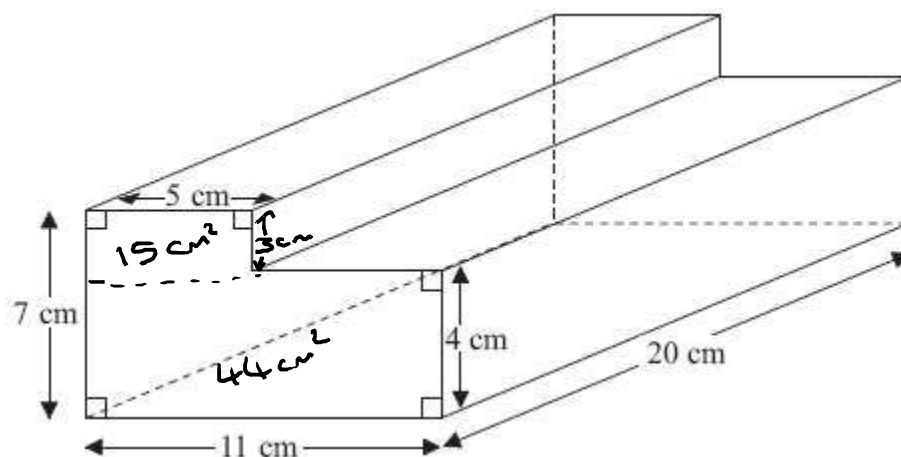


Diagram **NOT**
accurately drawn

Work out the volume of the prism.

$$\begin{aligned}\text{Volume} &= \text{area of cross-section} \times \text{length} \\ &= 59 \times 20 \\ &= 1180 \text{ cm}^3\end{aligned}$$

..... 1180 cm^3

(4 marks)

5.

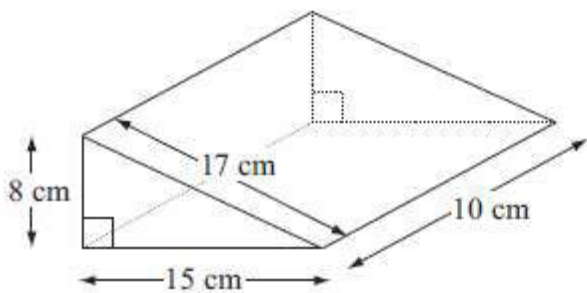


Diagram NOT
accurately drawn

Work out the volume of the triangular prism.

$$\text{Volume} = \text{area of cross section} \times \text{length}$$

$$= \frac{8 \times 15}{2} \times 10$$

$$= 60 \times 10$$

$$= 600$$

$$600 \text{ cm}^3$$

(4 marks)

6.

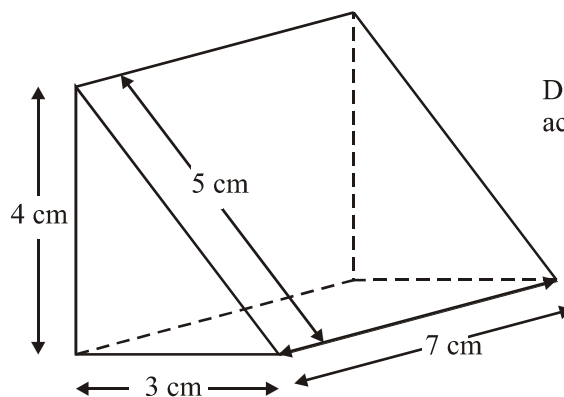


Diagram NOT
accurately drawn

Calculate the volume of the triangular prism.

$$\frac{4 \times 3}{2} \times 7$$

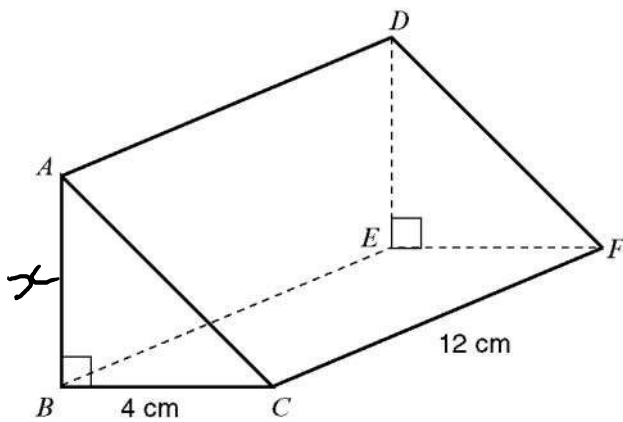
$$6 \times 7$$

$$42 \text{ cm}^3$$

(4 marks)

7. The diagram shows a triangular prism.

Diagram **NOT**
accurately drawn



$BC = 4$ cm, $CF = 12$ cm and angle $ABC = 90^\circ$.

The volume of the triangular prism is 84 cm^3 .

Work out the length of the side AB of the prism.

$$\frac{x \times 4}{2} \times 12 = 84$$

$$\frac{4x}{2} \times 12 = 84$$

$$2x \times 12 = 84$$

$$24x = 84$$

$$x = \frac{84}{24}$$

$$= \frac{42}{12}$$

$$= \frac{21}{6}$$

$$= \frac{7}{2}$$

.....
3.5 cm

(4 marks)

8. The diagram shows a triangular prism.

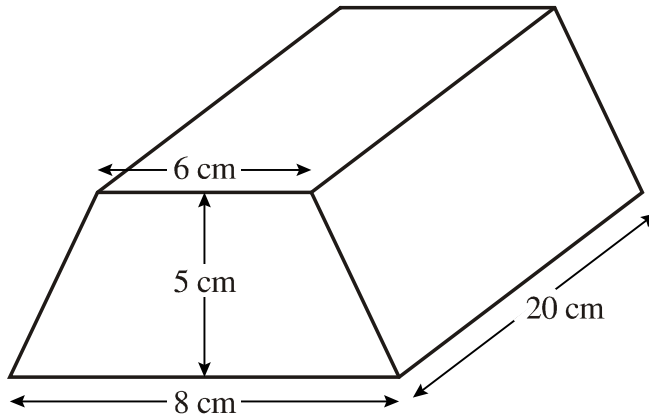


Diagram **NOT**
accurately drawn.

The cross-section of the prism is a trapezium.

The lengths of the parallel sides of the trapezium are 8 cm and 6 cm.

The distance between the parallel sides of the trapezium is 5 cm.

The length of the prism is 20 cm.

Work out the volume of the prism.

$$\text{Volume} = \text{area of cross section} \times \text{length}$$

$$= \frac{8+6}{2} \times 5 \times 20$$

$$= 35 \times 20$$

$$= 700 \text{ cm}^3$$

$$\underline{\underline{700 \text{ cm}^3}}$$

(4 marks)

9.

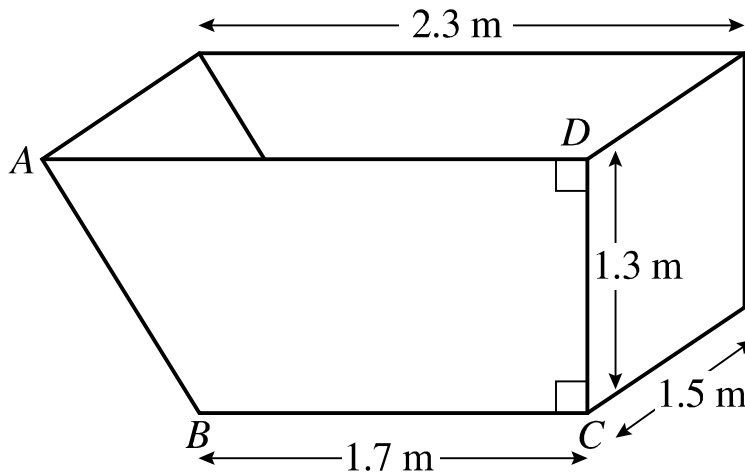


Diagram **NOT**
accurately
drawn

A skip is in the shape of a prism with cross-section $ABCD$.
 $AD = 2.3$ m, $DC = 1.3$ m and $BC = 1.7$ m.
 The width of the skip is 1.5 m.

(a) Calculate the area of the shape $ABCD$.

$$\frac{1.7 + 2.3}{2} \times 1.3$$

$$2 \times 1.3$$

$$\dots\dots\dots 2.6 \text{ m}^2$$

(2 marks)

b) Calculate the volume of the skip.

$$2.6 \times 1.5 = 3.9 \text{ m}^3$$

$$\dots\dots\dots 3.9 \text{ m}^3$$

(3 marks)