

Edexcel GCSE

Mathematics (Linear) – 1MA0

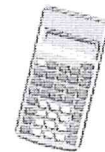
VOLUME OF PRISM

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Items included with question papers

Nil



Instructions

Use black ink or ball-point pen.

Fill in the boxes at the top of this page with your name, centre number and candidate number.

Answer all questions.

Answer the questions in the spaces provided – there may be more space than you need.

Calculators may be used.

Information

The marks for each question are shown in brackets – use this as a guide as to how much time to spend on **each** question.

Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed – you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.

Advice

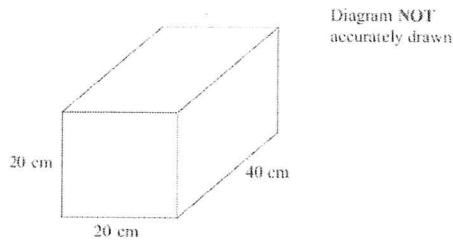
Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

1. Here is a cuboid.



Work out the volume of the cuboid.

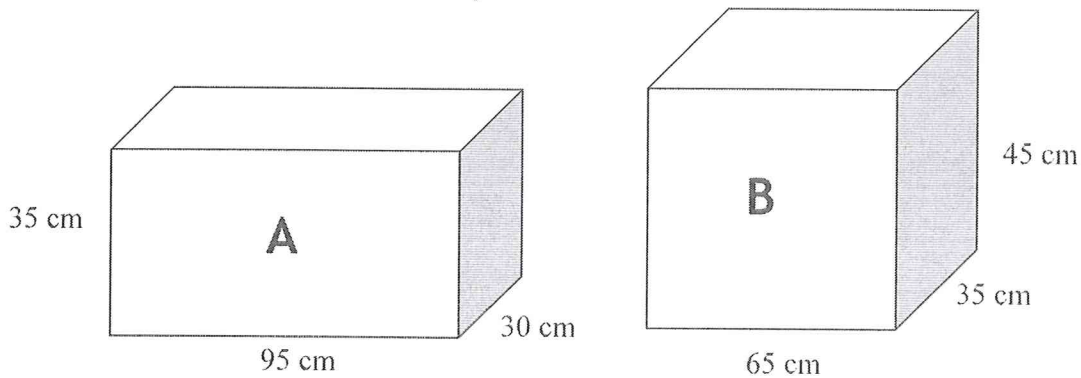
$$20 \times 20 \times 40 =$$

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

(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.

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

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

B holds the most water.

(4 marks)

3. The diagram shows a prism.

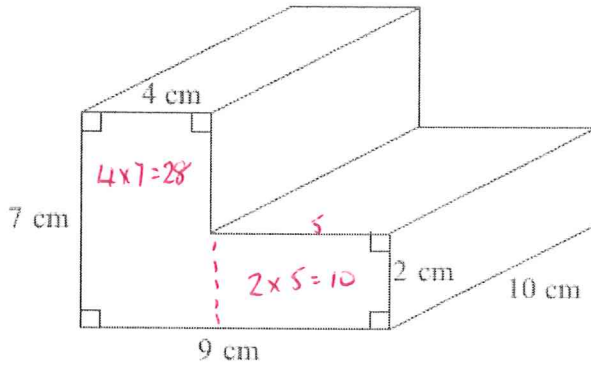


Diagram NOT
accurately drawn

Work out the volume of the prism.

$$\text{Area of front} = 28 + 10 = 38$$

$$\begin{aligned} \text{Volume} &= 38 \times 10 \\ &= 380 \text{ cm}^3 \end{aligned}$$

380 cm³

.....cm³

(4 marks)

4. Here is a solid prism.

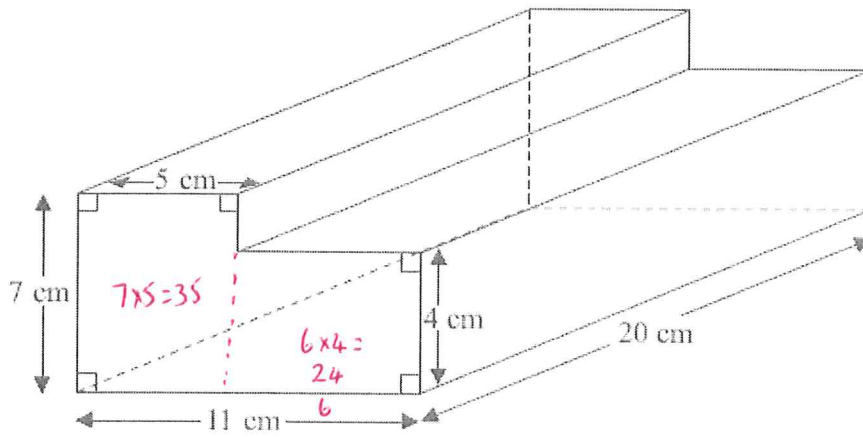


Diagram NOT accurately drawn

Work out the volume of the prism.

$$\text{Area of front} = 35 + 24 = 59 \text{ cm}^2$$

$$\text{Volume} = 59 \times 20 = 1180 \text{ cm}^3$$

..... cm³

(4 marks)

5.

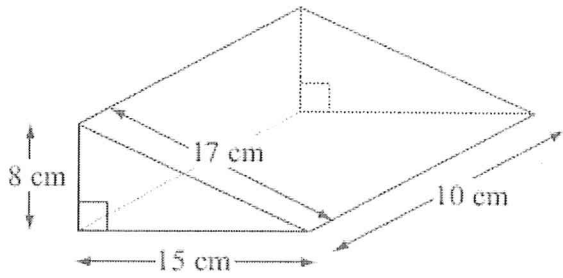


Diagram NOT
accurately drawn

Work out the volume of the triangular prism.

$$\text{area of front} = 8 \times 15 \times \frac{1}{2} = 60 \text{ cm}^2$$

$$\text{Volume} = 60 \times 10 = 600 \text{ cm}^3$$

.....
(4 marks)

6.

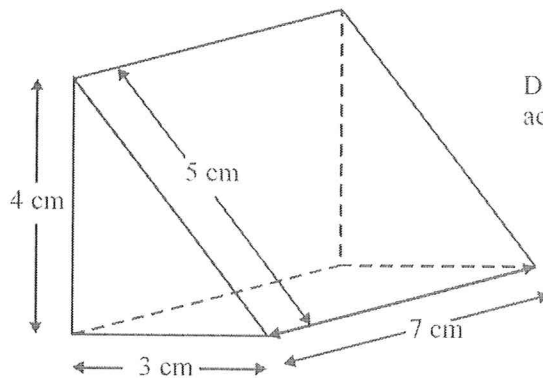


Diagram NOT
accurately drawn

Calculate the volume of the triangular prism.

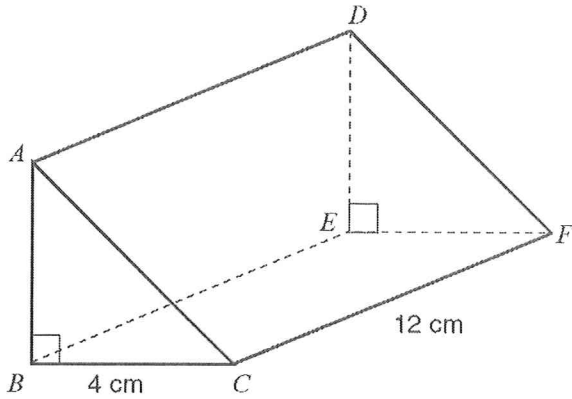
$$\text{Area of front} = 4 \times 3 \times \frac{1}{2} = 6 \text{ cm}^2$$

$$\text{Volume} = 6 \times 7 = 42 \text{ cm}^3$$

.....
(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 cm³.
Work out the length of the side AB of the prism.

$$4 \times x \times \frac{1}{2} \times 12 = 84$$

.....
3.5 cm.....

(4 marks)

8. The diagram shows a triangular prism.

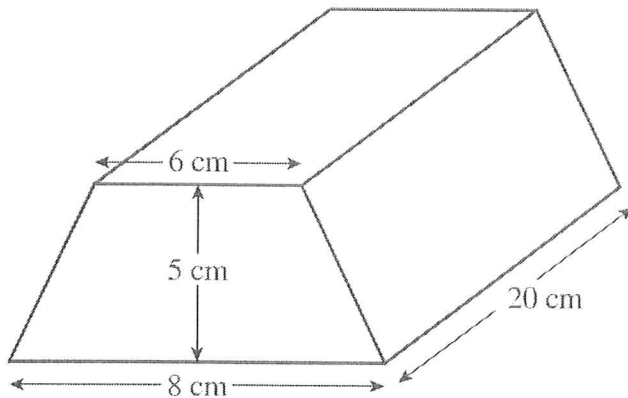


Diagram NOT
accurately drawn.

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.

$$\frac{1}{2}(6 + 8) \times 5 \times 20$$
$$= 700 \text{ cm}^3$$

.....
(4 marks)

9.

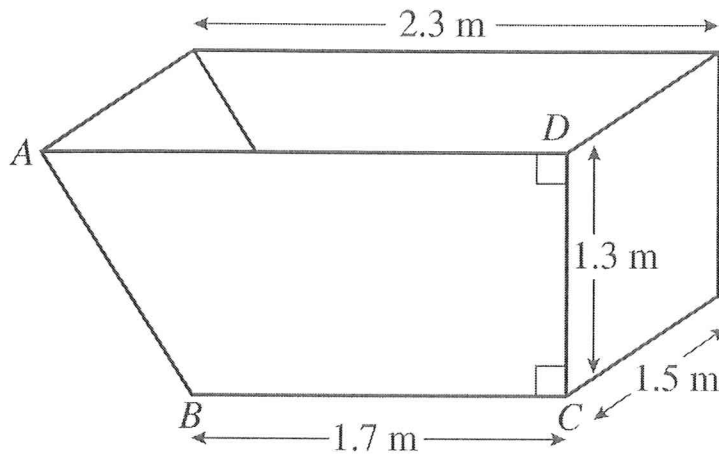


Diagram NOT
accurately
drawn

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 $ABCD$.

$$\frac{1}{2} (2.3 + 1.7) \times 1.3 = \cancel{1.95} \text{ m}^2 \quad 2.6 \text{ m}^2$$

.....
(2 marks)

b) Calculate the volume of the skip.

$$2.6 \times 1.5 = \cancel{2.925} \text{ m}^3$$

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

$$\cancel{2.925} \text{ m}^3$$

.....
(3 marks)