Solutions by
Kenneth Stafford
MATHS TUTOR
ken@kennethstafford.co.uk

GCSE (9-1) Grade 4 Volume of Prisms



Instructions

Use **black** ink or ball-point pen.
Fill in the boxes at the top of this page with your name.
Answer **all** questions.
Answer the questions in the spaces provided
- there may be more space than you need.

Show all your working out

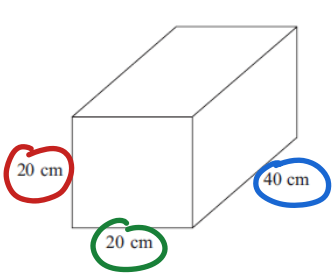
Information

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

Advice

Read each question carefully before you start to answer it
Attempt every question
Check your answers if you have time at the end

1. Here is a cuboid.

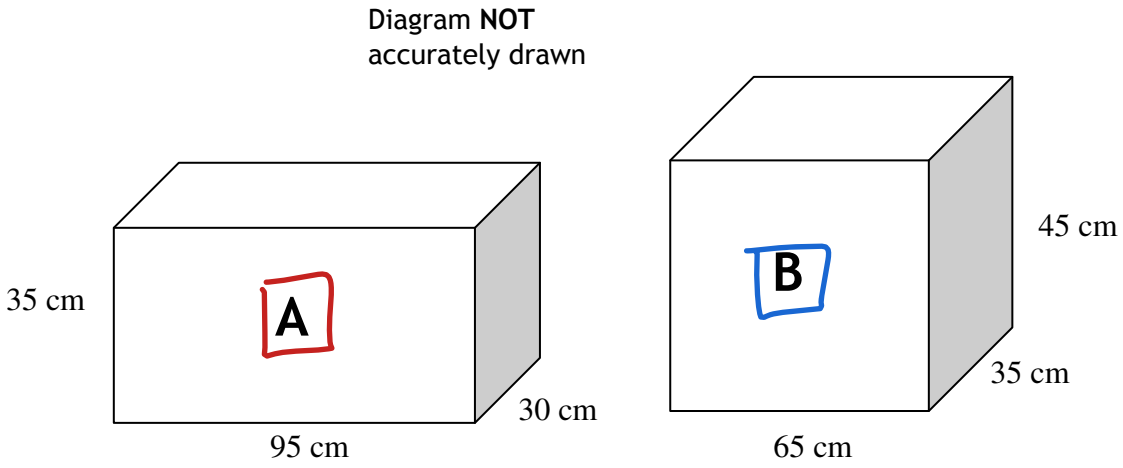


Work out the volume of the cuboid.

$20 \times 20 \times 40 = 16000 cm^3$

(3 marks)

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



Finley fills both fish tanks with water.

Which fish tank holds the most water?
You must show all your calculations.

$A = 35 \times 95 \times 30 = 99,750 cm^3$

$B = 65 \times 35 \times 45 = 102,375 cm^3$

B holds the most water

(4 marks)

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3. The diagram shows a prism.

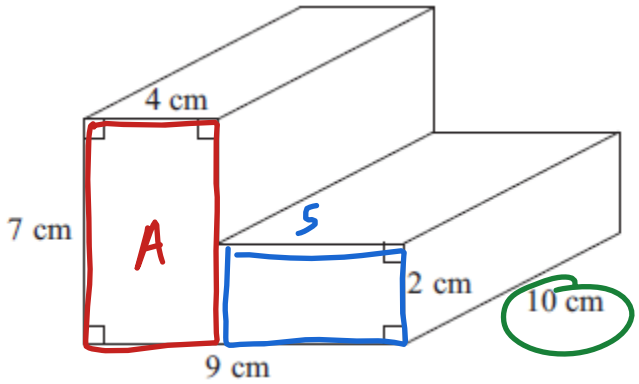


Diagram **NOT** accurately drawn

Work out the volume of the prism.

4
7 A $7 \times 4 = 28$

5
2 B $2 \times 5 = 10$

$28 + 10 = 38$

$38 \times 10 = 380$ .....cm^3

(4 marks)

4. Here is a solid prism.

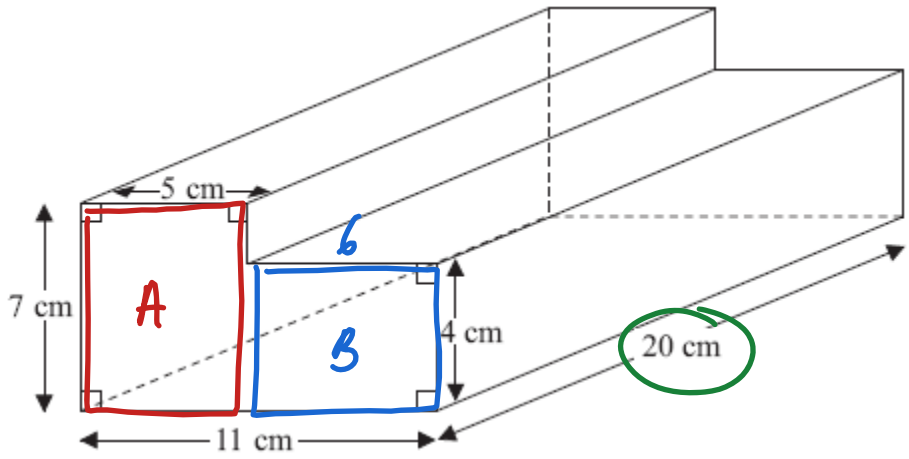


Diagram **NOT** accurately drawn

Work out the volume of the prism.

5
7 | A | $5 \times 7 = 35$

6
4 | B | $4 \times 6 = 24$

$35 + 24 = 59$

$59 \times 20 = 1180$ ..... cm^3

(4 marks)

5.

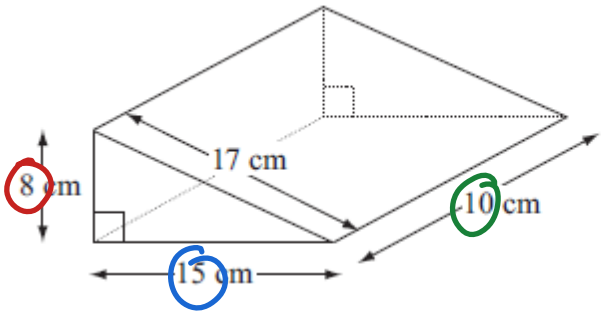


Diagram **NOT** accurately drawn

Work out the volume of the triangular prism.

$\frac{8 \times 15}{2} \times 10 = \frac{120}{2} \times 10 = 60 \times 10$

600 cm^3

(4 marks)

6.

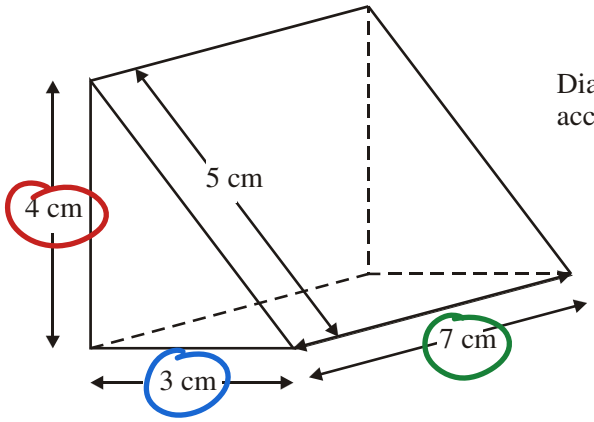


Diagram **NOT** accurately drawn

Calculate the volume of the triangular prism.

$\frac{4 \times 3}{2} \times 7 = \frac{12}{2} \times 7 = 6 \times 7$

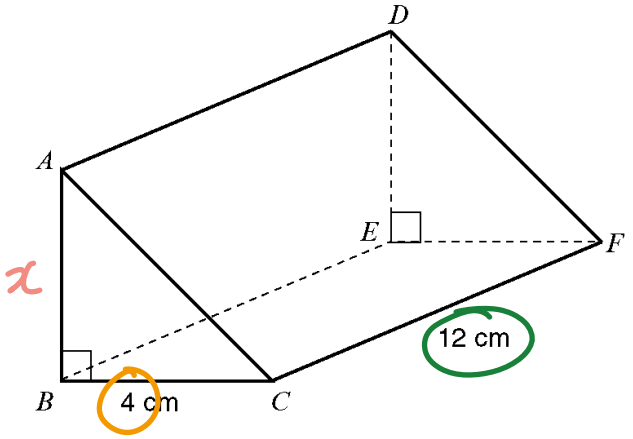
$= 42$ cm^3

(4 marks)

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7. The diagram shows a triangular prism.

Diagram **NOT** accurately drawn



$BC = 4$ cm, $CF = 12$ cm and angle $ABC = 90°$.

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

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

$$\frac{84}{12} = 7$$

Area of triangle $= 7 cm^2$

$$\frac{4x}{2} = 7$$

$$4x = 14$$

$$x = \frac{14}{4}$$

$$x = 3.5$$

3.5 cm

(4 marks)

8. The diagram shows a triangular prism.

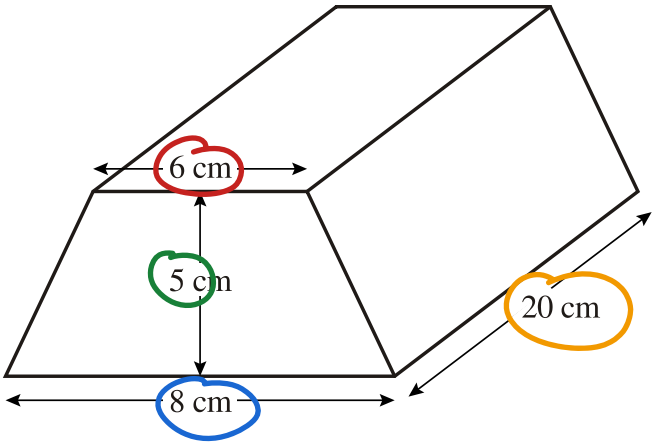


Diagram **NOT** accurately drawn.

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.

$\frac{1}{2}(6+8) \times 5 = \frac{1}{2}(14) \times 5 = 7 \times 5 = 35\text{cm}^2$

$35 \times 20 = 700\text{cm}^3$

700cm^3

(4 marks)

9.

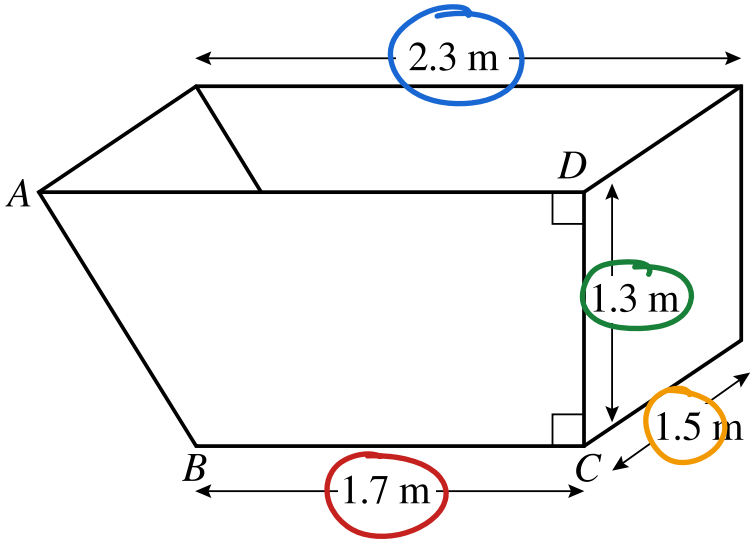


Diagram **NOT** accurately drawn

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*.

$\frac{1}{2}(1.7+2.3) \times 1.3 = \frac{1}{2}(4) \times 1.3 = 2 \times 1.3 = 2.6 \text{ m}^2$

.....

(2 marks)

b) Calculate the volume of the skip.

$2.6 \times 1.5 = 3.9$

3.9 m^3

.....

(3 marks)