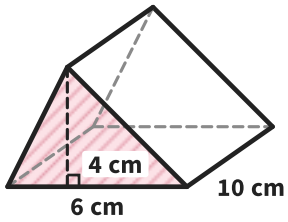
Volume of Prisms

ANSWERS

1

Work out the volume of this triangular prism.



Area of cross-section

$\frac{1}{2} \times 6 \times 4 = 12\ cm^2$

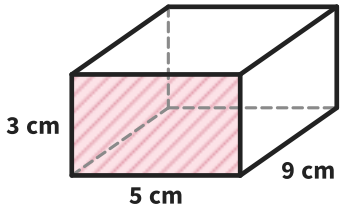
Volume = area of cross-section × length

$12 \times 10 = 120\ cm^3$

Answer $120\ cm^3$

2

Work out the volume of this cuboid.



Area of cross-section

$5 \times 3 = 15\ cm^2$

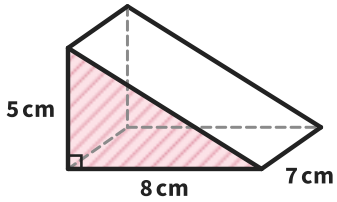
Volume = area of cross-section × length

$15 \times 9 = 135\ cm^3$

Answer $135\ cm^3$

3

Work out the volume of this triangular prism.



Area of cross-section

$\frac{1}{2} \times 8 \times 5 = 20\ cm^2$

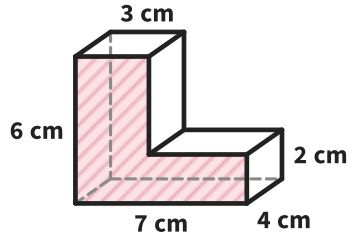
Volume = area of cross-section × length

$20 \times 7 = 140\ cm^3$

Answer $140\ cm^3$

4

Work out the volume of this prism.



Area of cross-section

$3 \times 6 + 4 \times 2 = 26\ cm^2$

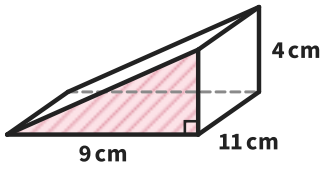
Volume = area of cross-section × length

$26 \times 4 = 104\ cm^3$

Answer $104\ cm^3$

5

Work out the volume of this triangular prism.



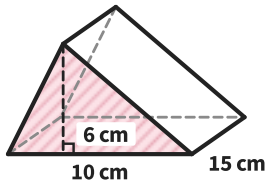
$\frac{1}{2} \times 9 \times 4 = 18\ cm^2$

$18 \times 11 = 198\ cm^3$

Answer $198\ cm^3$

6

Sam says the volume of this prism is $6 \times 10 \times 15 = 900\ cm^3$. Explain Sam's mistake, then work out the volume.



Sam forgot the ½: the cross-section is a triangle

$\frac{1}{2} \times 10 \times 6 = 30\ cm^2, \times 15$

Answer $450\ cm^3$

7

A wooden doorstop is a prism.
Its cross-section is a right-angled triangle 8 cm long and 3 cm high. The doorstop is 5 cm wide. Work out its volume.

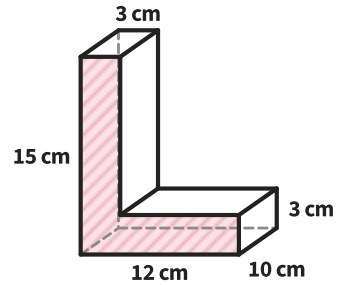
$\frac{1}{2} \times 8 \times 3 = 12\ cm^2$

$12 \times 5 = 60\ cm^3$

Answer $60\ cm^3$

8

A metal bookend is a prism.
Its cross-section is made of two rectangles.
Work out its volume.



$3 \times 15 + 9 \times 3 = 72\ cm^2$

$72 \times 10 = 720\ cm^3$

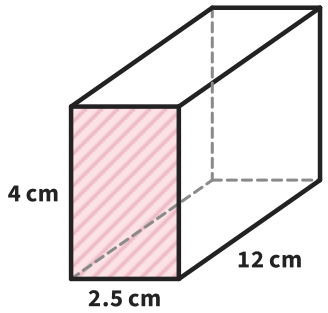
Answer $720\ cm^3$

Volume of Prisms *further practice*

ANSWERS

9

Work out the volume of this cuboid.

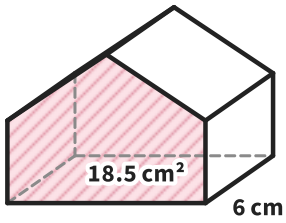


$2.5 \times 4 = 10\ cm^2, \times 12$

Answer: $120\ cm^3$

10

The cross-section of this prism has an area of 18.5 cm^2. Work out its volume.

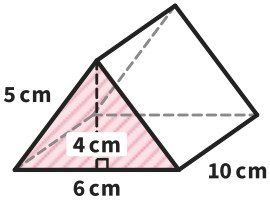


18.5×6

Answer: $111\ cm^3$

11

Work out the volume of this triangular prism.



$\frac{1}{2} \times 6 \times 4 = 12\ cm^2$

$12 \times 10 = 120\ cm^3$

Answer: $120\ cm^3$

12

A fish tank is a cuboid 60 cm long, 30 cm wide and 40 cm high. How many litres of water does it hold when it is full?
(1000 cm^3 = 1 litre)

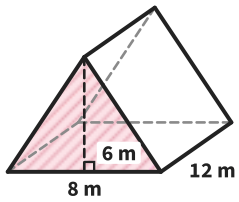
$60 \times 30 \times 40 = 72\ 000\ cm^3$

$72\ 000 \div 1000$

Answer: 72 litres

13

The space in a loft is a triangular prism. The triangle is 8 m wide and 6 m high, and the loft is 12 m long. Work out the volume of the loft.



$\frac{1}{2} \times 8 \times 6 = 24\ m^2$

24×12

Answer: $288\ m^3$

14

Box A is a cuboid 10 cm by 6 cm by 5 cm. Box B is a triangular prism: its triangle has a base of 12 cm and a height of 8 cm, and it is 6 cm long. Which box holds more, and by how much?

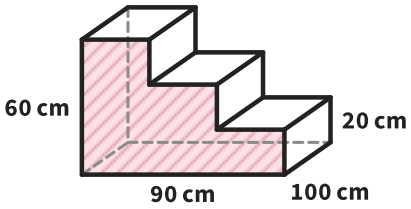
A: $10 \times 6 \times 5 = 300\ cm^3$

B: $\frac{1}{2} \times 12 \times 8 \times 6 = 288\ cm^3$

Answer: A, by $12\ cm^3$

15

A block of steps for a stage is a prism. Each step is 30 cm deep and 20 cm high. Work out its volume.



$90 \times 20 + 60 \times 20 + 30 \times 20 = 3600\ cm^2$

3600×100

Answer: $360\ 000\ cm^3$

16

The cross-section of a prism has an area of 15 cm^2 and the prism is 4 cm long. Kai says that if the prism were twice as long, its volume would double. Is Kai right? Explain.

$15 \times 4 = 60\ cm^3, 15 \times 8 = 120\ cm^3$

the cross-section is the same, the length is doubled

Answer: Yes, 60 to $120\ cm^3$