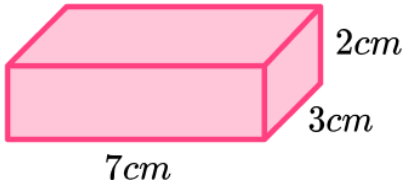
Volume of Prisms - Worksheet

Skill

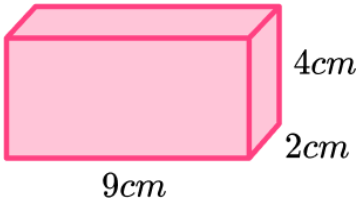
Group A - Volume of cuboids

Work out the volume of the cuboids below:

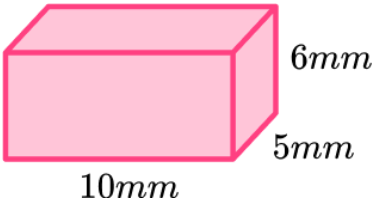
1)



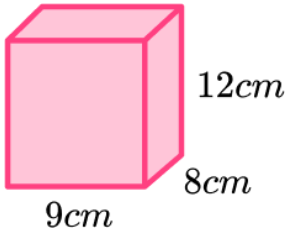
2)



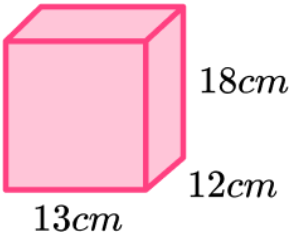
3)



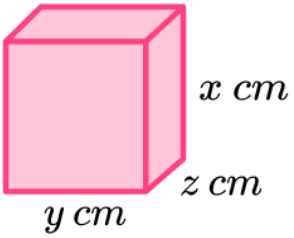
4)



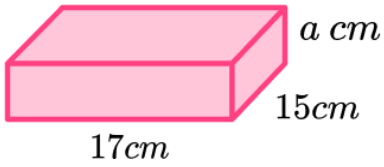
5)



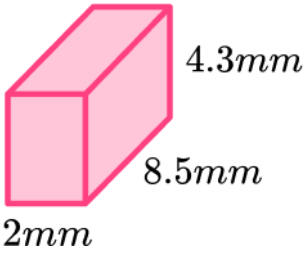
6)



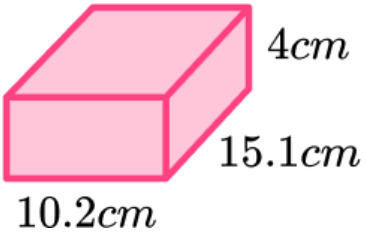
7)



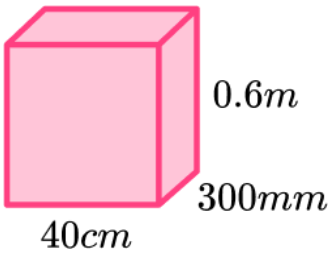
8)



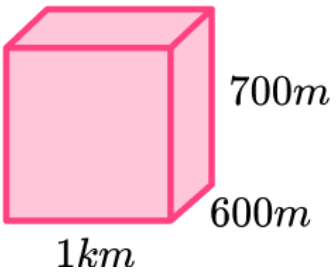
9)



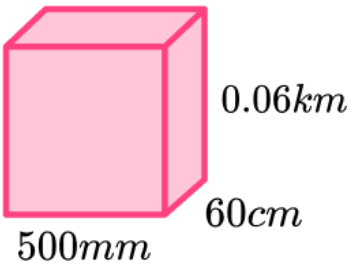
10)



11)



12)

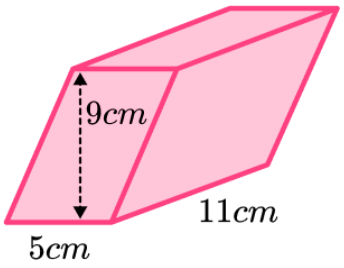


Volume of Prisms - Worksheet

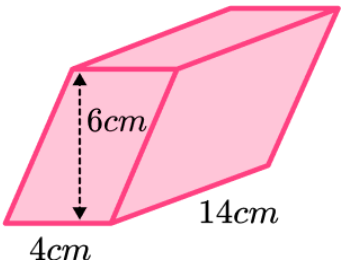
Group B - Volume of triangular, parallelogram and trapezoidal prisms

Work out the volume of the prisms below:

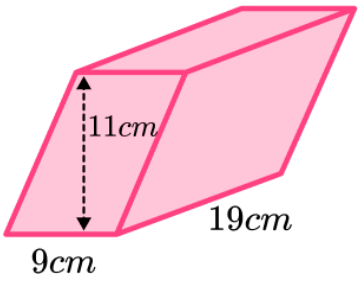
1)



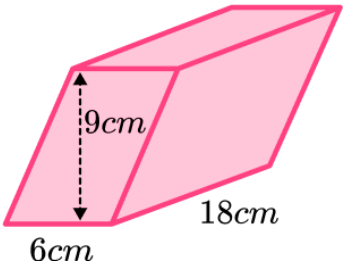
2)



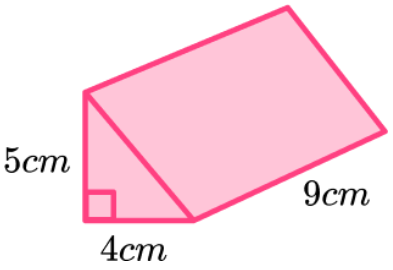
3)



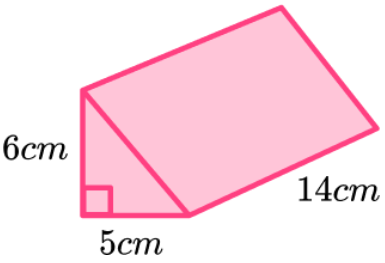
4)



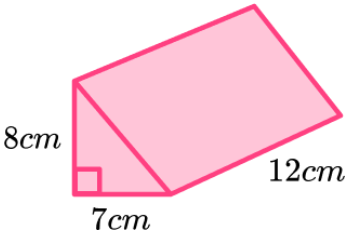
5)



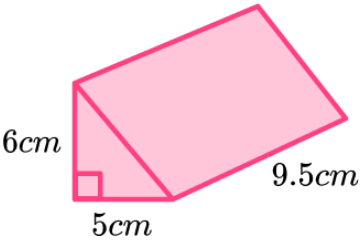
6)



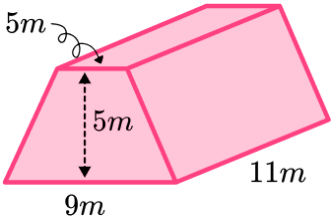
7)



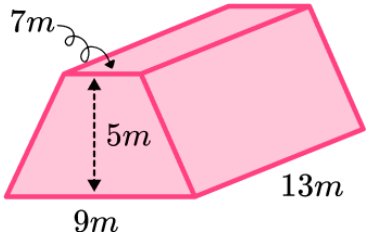
8)



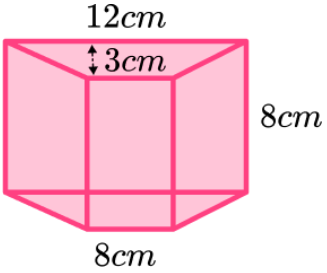
9)



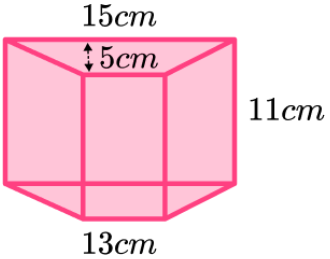
10)



11)



12)

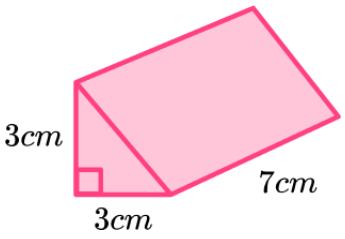


Volume of Prisms - Worksheet

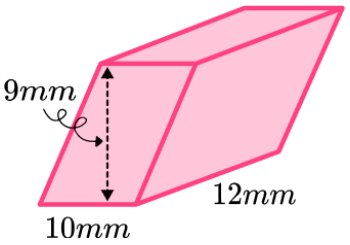
Group C - Volume of mixed prisms

Work out the volume of each prism

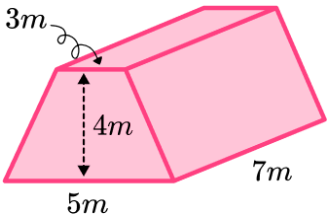
1)



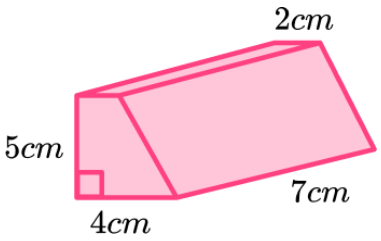
2)



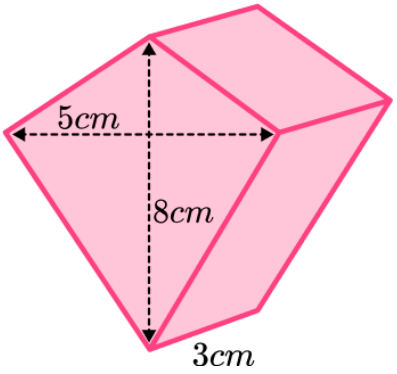
3)



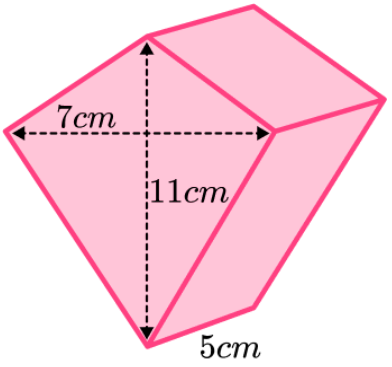
4)



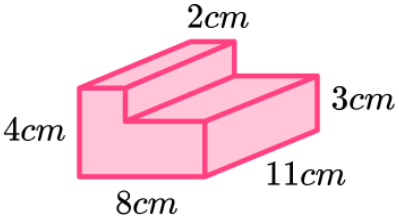
5)



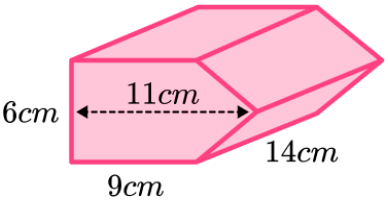
6)



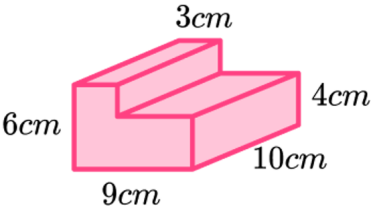
7)



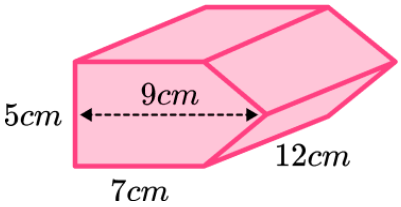
8)



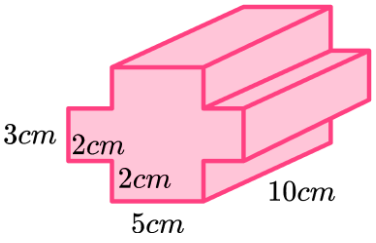
9)



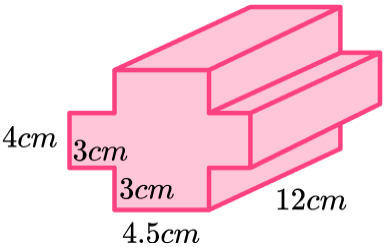
10)



11)



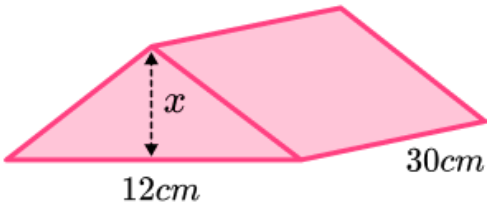
12)



Volume of Prisms - Worksheet

Applied

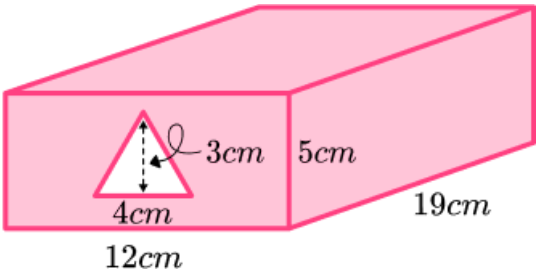
1) **(a)** Work out the value of x in the prism below.



$Volume = 1440cm^2$

(b) Sketch a cuboid with the same volume as the prism above.

2) **(a)** This solid shape has a hole all the way through the middle. Work out the volume of the solid shape.

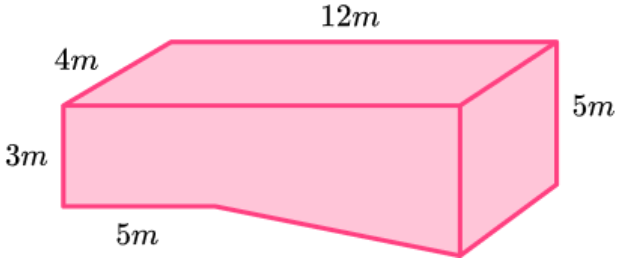


(b) Convert the volume to m^3.

3) **(a)** Sketch a triangular prism with a volume of $120cm^3$.

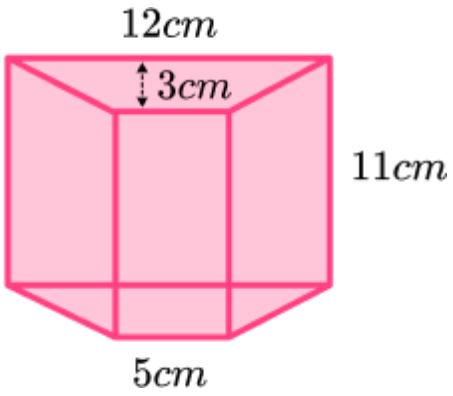
(b) Sketch a trapezoidal prism with a volume of $150cm^3$.

4) How many litres of water can the swimming pool below hold? ($1m^3 = 1000\ l$)



Volume of Prisms - Exam Questions

1) **(a)** Work out the volume of this carton of juice.



.....

(3)

(b) The juice is made from a mixture of concentrate and water in the ratio 2: 3. How many millilitres of concentrate would be required for this carton?

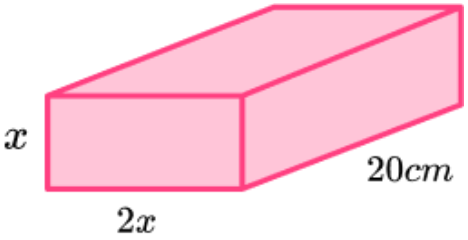
.....

(3)

(6 marks)

Volume of Prisms - Exam Questions

2) **(a)** Calculate the value of x in the diagram.



$Volume = 640cm^2$

.....

(3)

(b) If the length of the rectangle is doubled to $40cm$, work out the new volume of the cuboid.

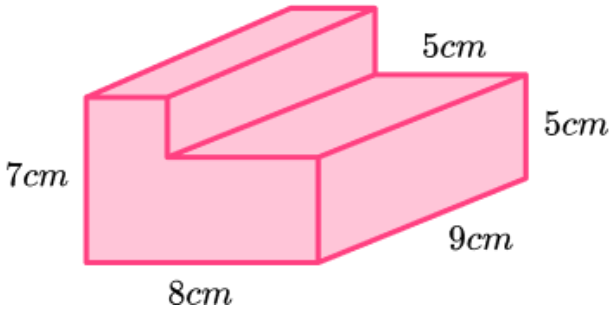
.....

(2)

(5 marks)

Volume of Prisms - Exam Questions

3) **(a)** Work out the volume of the prism.



.....

(3)

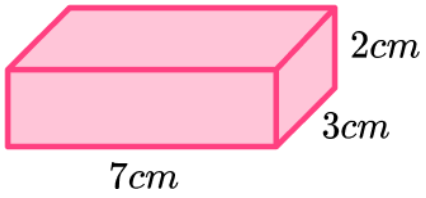
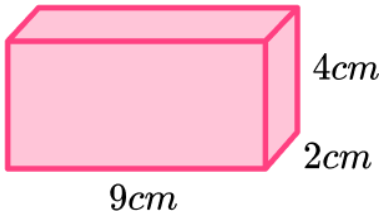
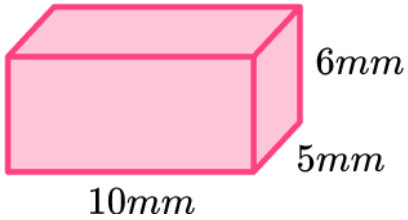
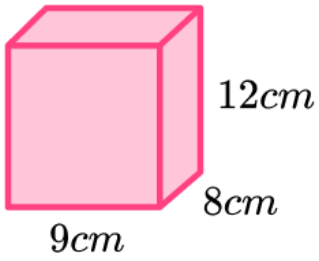
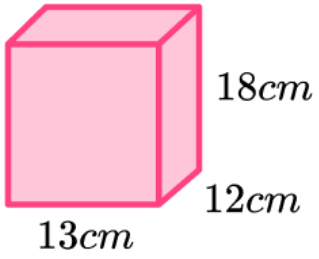
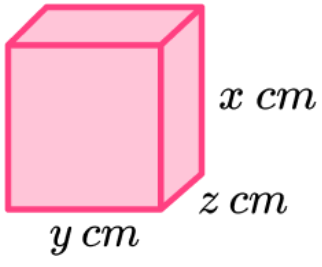
(b) If the prism is enlarged by a scale factor of 3, what is the new volume?

.....

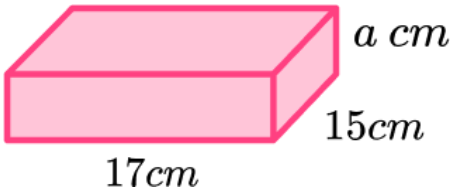
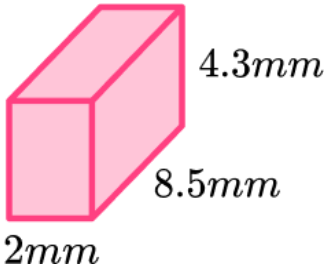
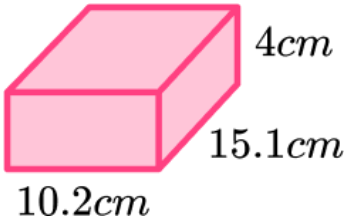
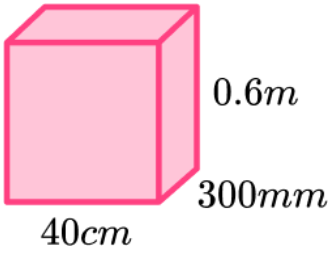
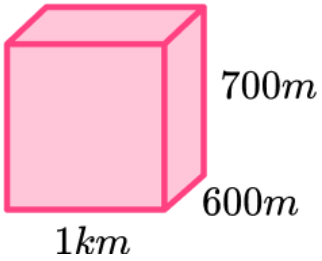
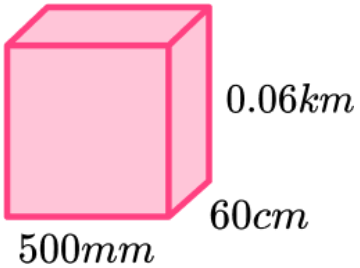
(2)

(2 marks)

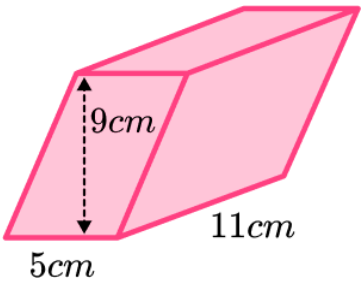
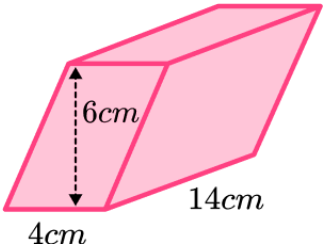
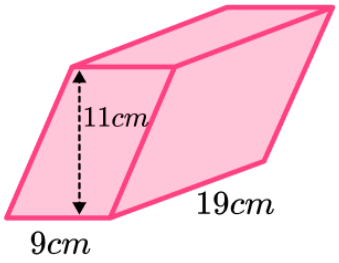
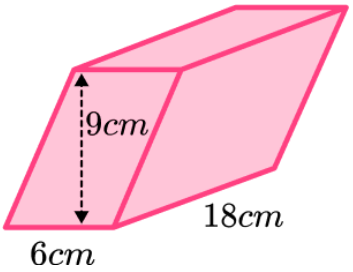
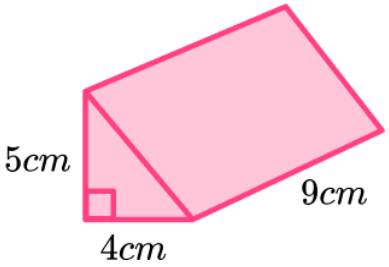
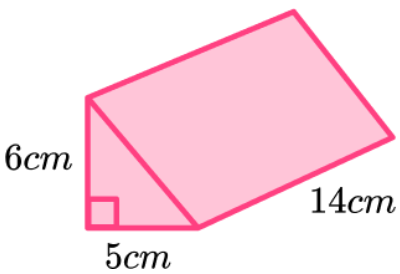
Volume of Prisms - Answers

	Question	Answer
	Skill Questions	
Group A	Work out the volume of the cuboids below: **1)**  **2)**  **3)**  **4)**  **5)**  **6)** 	**1)** $42cm^3$ **2)** $72cm^3$ **3)** $300mm^3$ **4)** $864cm^3$ **5)** $2808cm^3$ **6)** $xyz\ cm^3$

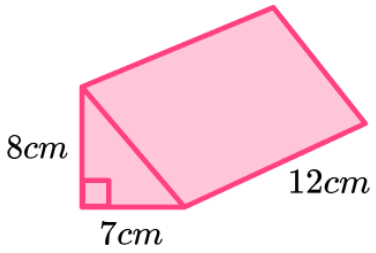
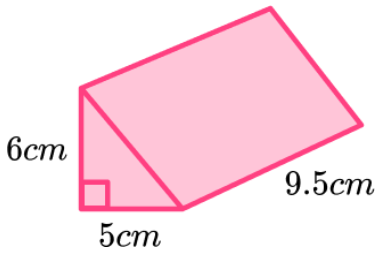
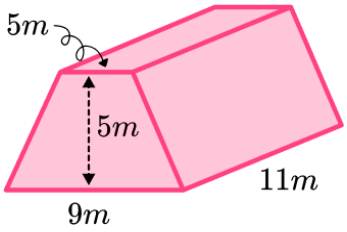
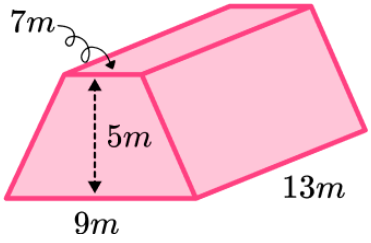
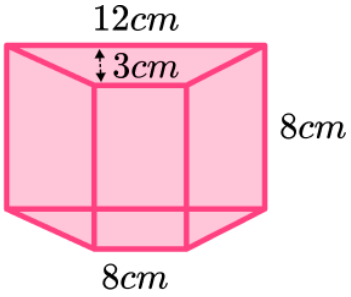
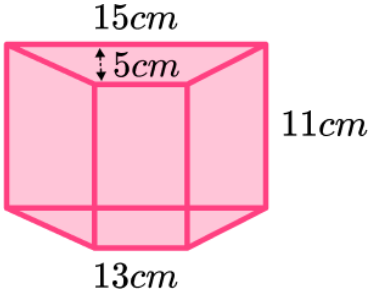
Volume of Prisms - Answers

Group A contd	**7)** 	**7)** $255a\ cm^3$
	8) 	**8)** $73.1mm^3$
	9) 	**9)** $616.08cm^3$
	10) 	**10)** $72000\ cm^3$ or $0.072\ m^3$
	11) 	**11)** $0.42km^3$ or $420000000m^3$
	12) 	**12)** $18m^3$ **oe**

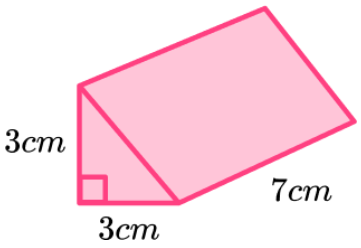
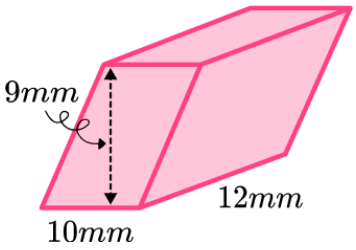
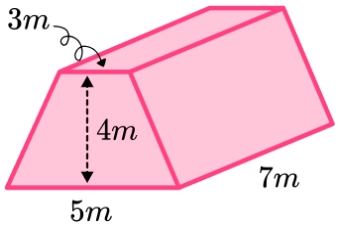
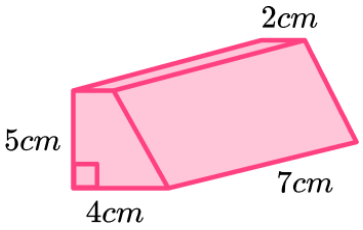
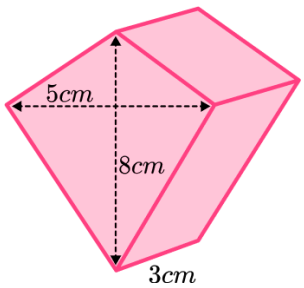
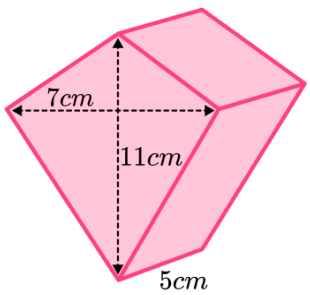
Volume of Prisms - Answers

Group B	Work out the volume of the prisms below: **1)**  **2)**  **3)**  **4)**  **5)**  **6)** 	**1)** $495cm^3$ **2)** $336cm^3$ **3)** $1881cm^3$ **4)** $972cm^3$ **5)** $90cm^3$ **6)** $210cm^3$

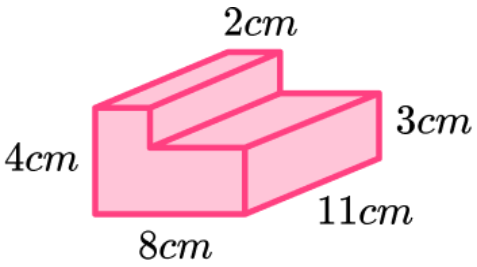
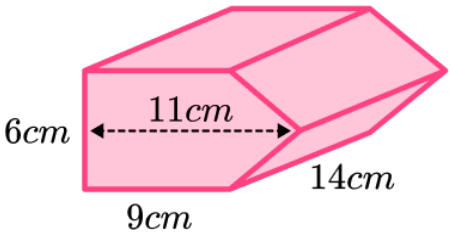
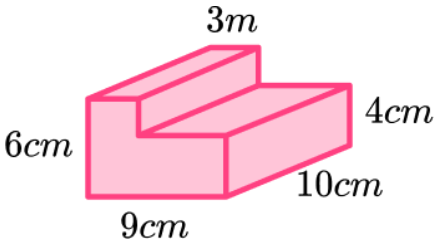
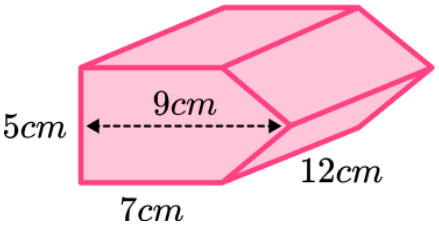
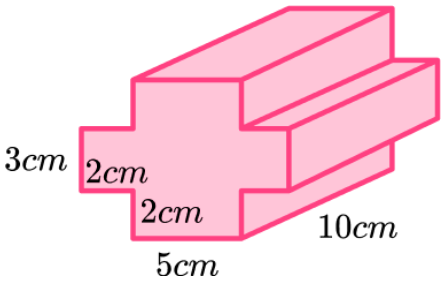
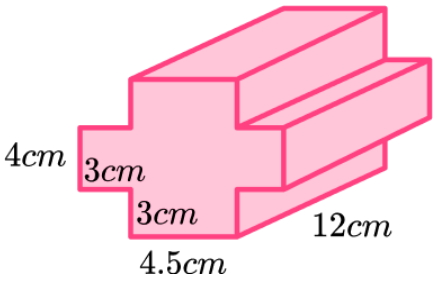
Volume of Prisms - Answers

Group B contd	**7)** 	**7)** $336cm^3$
	8) 	**8)** $142.5cm^3$
	9) 	**9)** $385m^3$
	10) 	**10)** $520m^3$
	11) 	**11)** $240cm^3$
	12) 	**12)** $770cm^3$

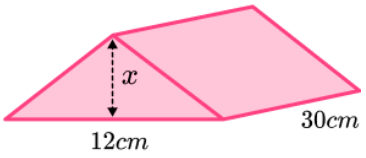
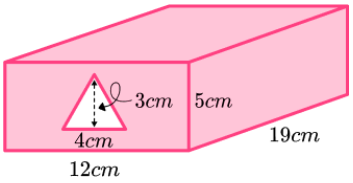
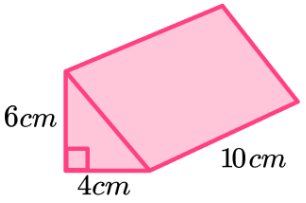
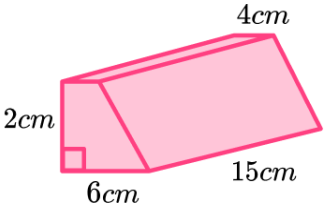
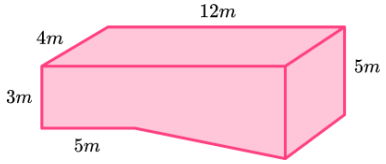
Volume of Prisms - Answers

Group C	Work out the volume of the prisms below: **1)**  **2)**  **3)**  **4)**  **5)**  **6)**  	**1)** $31.5cm^3$ **2)** $1080mm^3$ **3)** $112m^3$ **4)** $105cm^3$ **5)** $60cm^3$ **6)** $192.5cm^3$

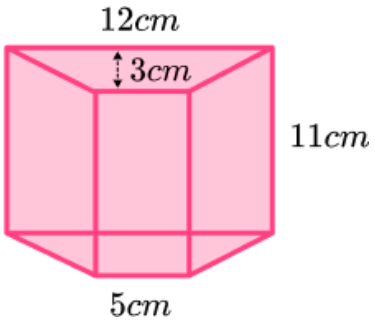
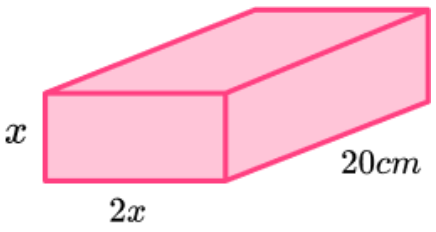
Volume of Prisms - Answers

Group C contd	**7)** 	**7)** $297cm^3$
	8) 	**8)** $840cm^3$
	9) 	**9)** $420cm^3$
	10) 	**10)** $480cm^3$
	11) 	**11)** $470cm^3$
	12) 	**12)** $828cm^3$

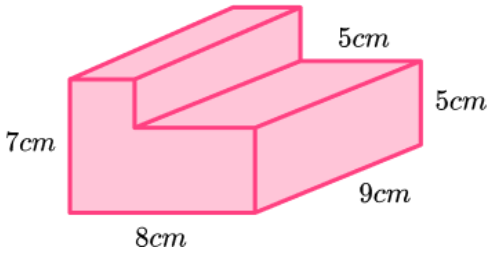
Volume of Prisms - Answers

	Question	Answer
	Applied Questions	
1)	**a)** Work out the value of x in the prism below.  $Volume = 1440cm^2$	**a)** $x = 8cm$
	b) Sketch a cuboid with the same volume as the prism above.	**b)** Answers may vary E.g. $12cm$ by $12cm$ by $10cm$
2)	**a)** This solid shape has a hole all the way through the middle. Work out the volume of the solid shape. 	**a)** $1026cm^3$
	b) Convert the volume to m^3.	**b)** $0.001026m^3$
3)	**a)** Sketch a triangular prism with a volume of $120cm^3$.	**a)** Example solution: 
	b) Sketch a trapezoidal prism with a volume of $150cm^3$.	**b)** Example solution: 
4)	How many litres of water can the swimming pool below hold? ($1m^3 = 1000\ l$) 	$172000l$

Volume of Prisms - Mark Scheme

	Question	Answer	
	Exam Questions		
1) (a)	Work out the volume of this carton of juice.  	**(a)** Area of trapezium $= \frac{1}{2}(3)(5 + 12)$ $= 25.5cm^2$ $Volume = 25.5 \times 11$ $Volume = 280.5cm^3$	**(1)** **(1)** **(1)**
(b)	The juice is made from a mixture of concentrate and water in the ratio 2: 3. How many millilitres of concentrate would be required for this carton?	**(b)** $280.5 \div (2 + 3) = 56.1$ $56.1 \times 2 = 112.2cm^3$ $112.2ml$	**(1)** **(1)** **(1)**
2) (a)	Calculate the value of x in the diagram.  $Volume = 640cm^2$	**(a)** $V = l \times w \times h$ $V = 2x \times x \times 20$ $640 = 40x^2$ $x^2 = 16$ $x = 4$ (do not accept $x = \pm 4$ or $x = -4$)	**(1)** **(1)** **(1)**
(b)	If the length of the rectangle is doubled to $40cm$, work out the new volume of the cuboid.	**(b)** $V = l \times w \times h$ $V = 40 \times 8 \times 4$ $V = 1280cm^3$	**(1)** **(1)**

Volume of Prisms - Mark Scheme

3) (a)	Work out the volume of the prism.  	**(a)** $(8)(5) + (2)(3) = 46cm^2$ $V = 46 \times 9$ $V = 414cm^3$	**(1)** **(1)** **(1)**
(b)	If the prism is enlarged by a scale factor of 3, what is the new volume?	**(b)** 3^3 **or 27 seen** $414 \times 3^3 = 11178cm^3$	**(1)** **(1)**