

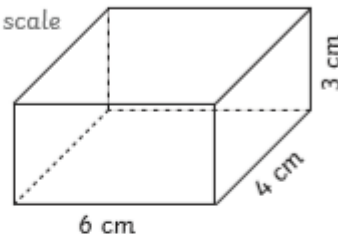


Use the formula
length × width × height
to calculate the volume of a cuboid.

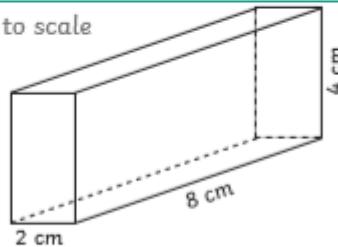


1) Calculate the volume for each of these cuboids.

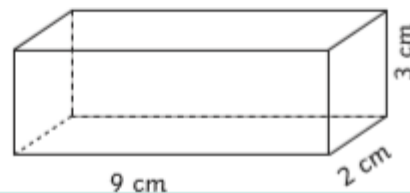
a) Not drawn to scale



b) Not drawn to scale

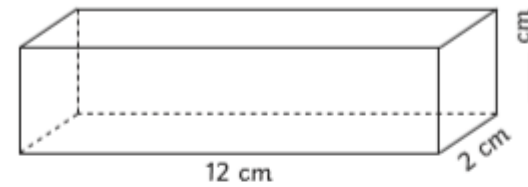


c) Not drawn to scale



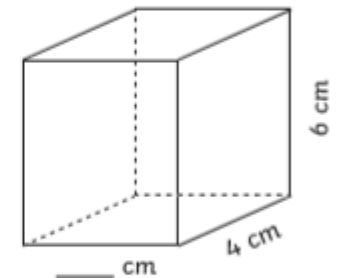
2) Calculate the missing values in each of these cuboids.

a) Not drawn to scale



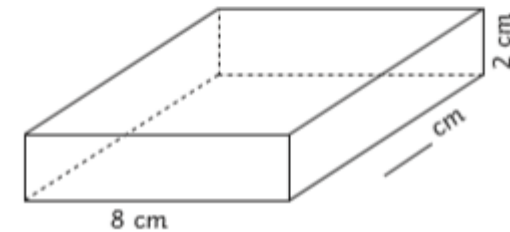
$$12 \times 2 \times \underline{\hspace{1cm}} = 72\text{cm}^3$$

b) Not drawn to scale



$$\underline{\hspace{1cm}} \times 4 \times 6 = 120\text{cm}^3$$

c) Not drawn to scale



$$8 \times \underline{\hspace{1cm}} \times 2 = 112\text{cm}^3$$



Use the formula

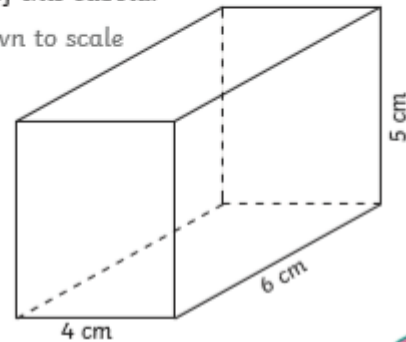
length × width × height

to calculate the volume of a cuboid.



- 1) Two children are discussing the best way to find the volume of this cuboid.

Not drawn to scale



Amrit says - To work out the volume I made sure to use the formula length × width × height in order.

$$4 \times 6 = 24$$

$$24 \times 5 = 120\text{cm}^3$$



Amrit

Noah says - I just multiplied the measurements in the order I found the easiest and quickest to work out.

$$4 \times 5 = 20$$

$$20 \times 6 = 120\text{cm}^3$$

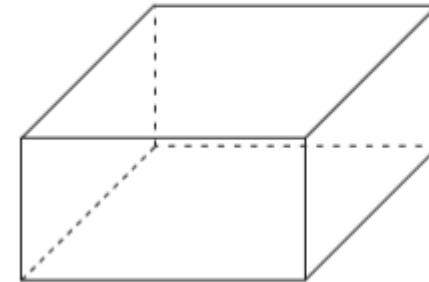


Noah

Will Noah's method always work? Explain your answer fully.

- 2) Ada measures the sides of this cuboid in order to find the volume.

Not drawn to scale



All of the sides are even numbers.
I calculated that the volume of my shape was 17cm^3 .



Ada

I don't think Ada's answer can be correct if all the sides were even number.



Chelsea

Do you agree with Chelsea? Explain your reasoning.

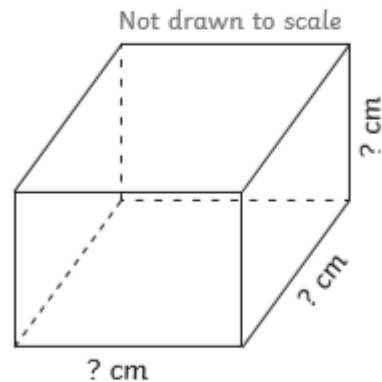
Use the formula

length × width × height

to calculate the volume of a cuboid.



- 1) A cuboid has sides that are whole numbers. No side is smaller than 3cm or longer than 10cm. It has a volume between 70cm^3 and 75cm^3

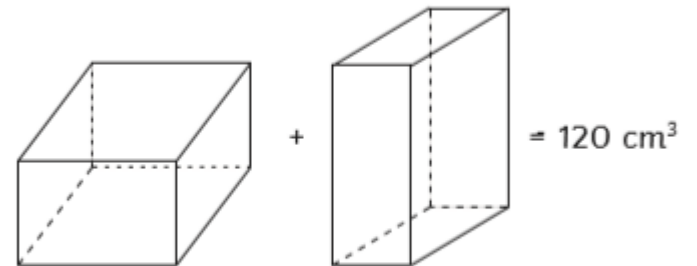


Find three sets of different dimensions for the cuboid.

(Rearranging the order of the measurements is not accepted as a different answer.)

length = cm
width = cm
height = cm
volume = cm^3

- 2) When added together, two different cuboids have a volume equal to 120cm^3 .
Give the possible dimensions of these cuboids.



Find 5 different answers.

(Rearranging the order of the measurements is not accepted as a different answer.)

ANSWERS

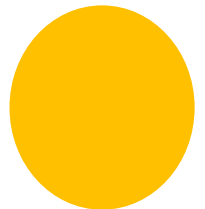
- 1) a) cuboid A: $6 \times 4 \times 3 = 72\text{cm}^3$
b) cuboid B: $2 \times 8 \times 4 = 64\text{cm}^3$
c) cuboid C: $9 \times 2 \times 3 = 54\text{cm}^3$
- 2) Cuboid A: $12 \times 2 \times 3 = 72\text{cm}^3$
Cuboid B: $5 \times 4 \times 6 = 120\text{cm}^3$
Cuboid C: $8 \times 7 \times 2 = 112\text{cm}^3$



- 1) Yes, Noah's method will always work because the order in which the multiplication is carried out has no effect on the answer. Choosing the most efficient order to multiply the numbers is an effective method to use.
- 2) Chelsea is correct. If all of Ada's side measurements were even numbers, the answer cannot be an odd number. This is because an even number \times even number \times even number = an even number.

For example:

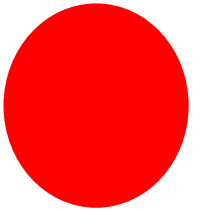
$$4 \times 2 \times 8 = 64\text{cm}^3$$



1) length = 3cm
width = 3cm
height = 8cm
volume = 72cm^3

length = 3cm
width = 5cm
height = 5cm
volume = 75cm^3

length = 3cm
width = 6cm
height = 4cm
volume = 72cm^3



2) Answers will vary. There are many possible answers including:

$$\begin{aligned}2 \times 15 \times 2 &= 60\text{cm}^3 + 2 \times 10 \times 3 = 60\text{cm}^3 \\2 \times 7 \times 5 &= 70\text{cm}^3 + 5 \times 5 \times 2 = 50\text{cm}^3 \\8 \times 5 \times 2 &= 80\text{cm}^3 + 2 \times 10 \times 2 = 40\text{cm}^3 \\4 \times 10 \times 2 &= 80\text{cm}^3 + 5 \times 4 \times 2 = 40\text{cm}^3 \\2 \times 25 \times 2 &= 100\text{cm}^3 + 2 \times 2.5 \times 4 = 20\text{cm}^3\end{aligned}$$