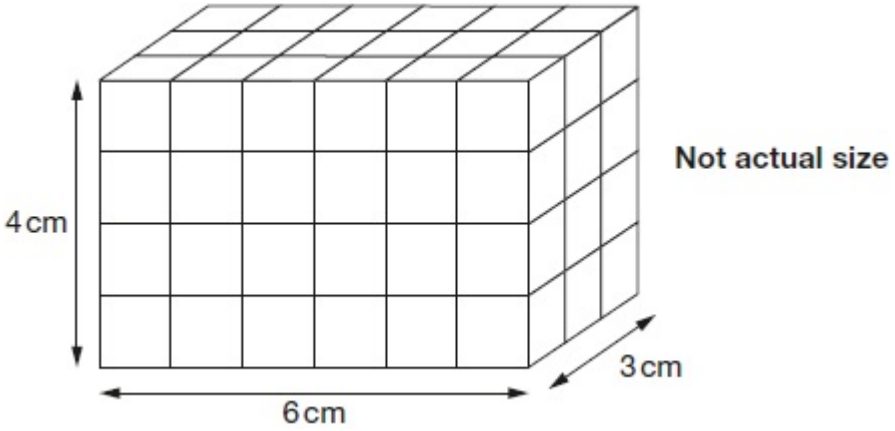
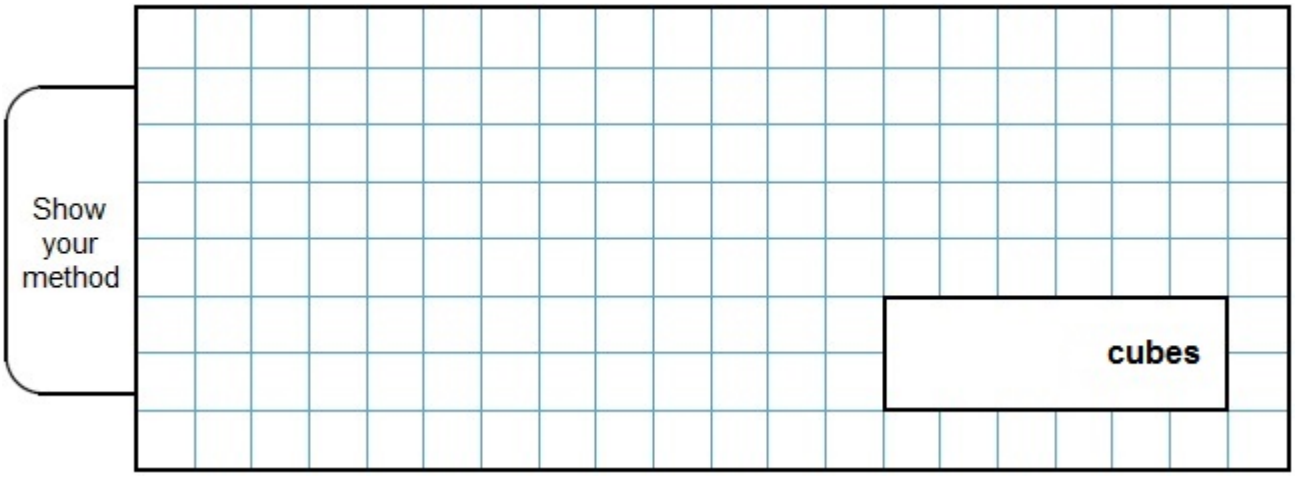
1. Amina made this cuboid using centimetre cubes.



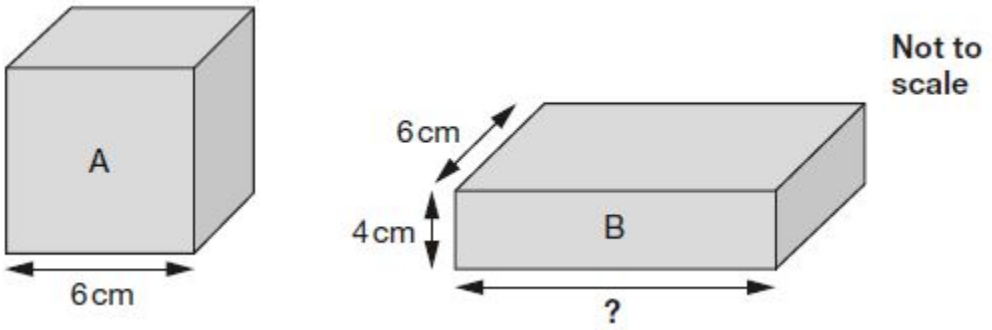
Stefan makes a cuboid that is 5 cm longer, 5 cm taller and 5 cm wider than Amina's cuboid.

What is the **difference** between the number of cubes in Amina's and Stefan's cuboids?



2 marks

2. Cube A and cuboid B have the same volume.



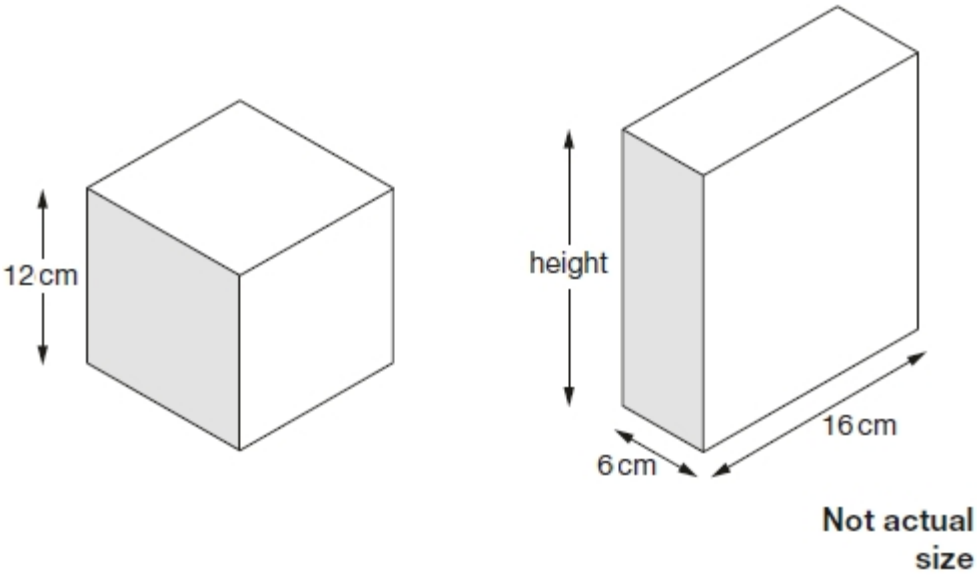
Calculate the missing length on cuboid B.

Show your method

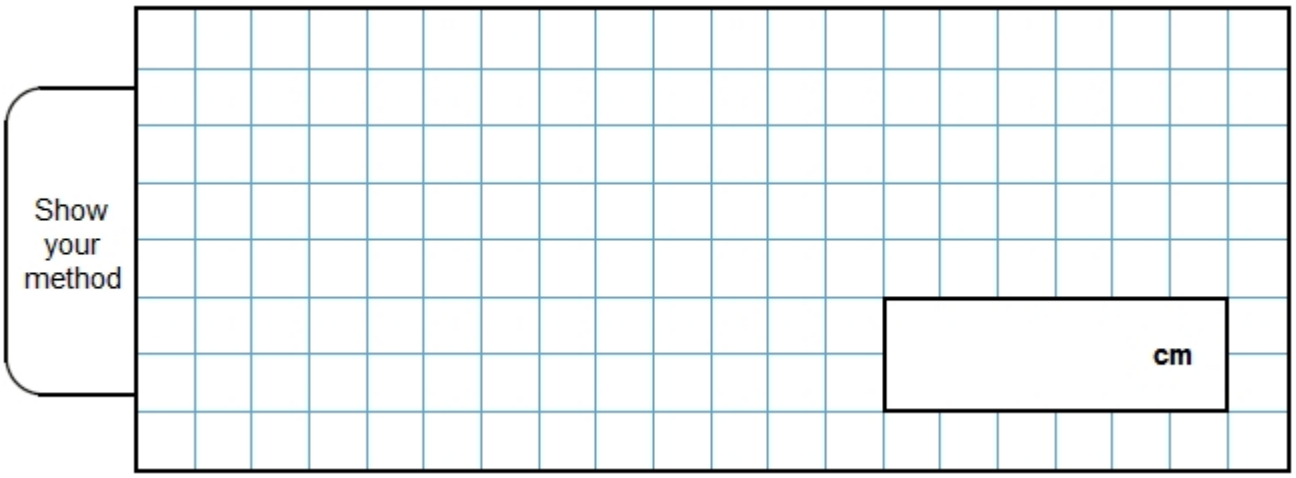
cm

2 marks

3. The cube and cuboid have **equal volumes**.



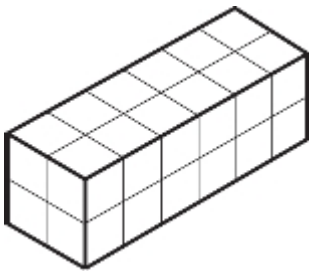
Calculate the height of the cuboid.



2 marks

4. Cleo has **24** centimetre cubes.

She uses all 24 cubes to make a cuboid with dimensions **6** cm, **2** cm and **2** cm.



Write the dimensions of a **different** cuboid she can make using all 24 cubes.

_____ cm, _____ cm and _____ cm

1 mark

Jon has **20** centimetre cubes.

He wants to make a cube with edges that are **3** cm long.

How many **more** centimetre cubes does he need?

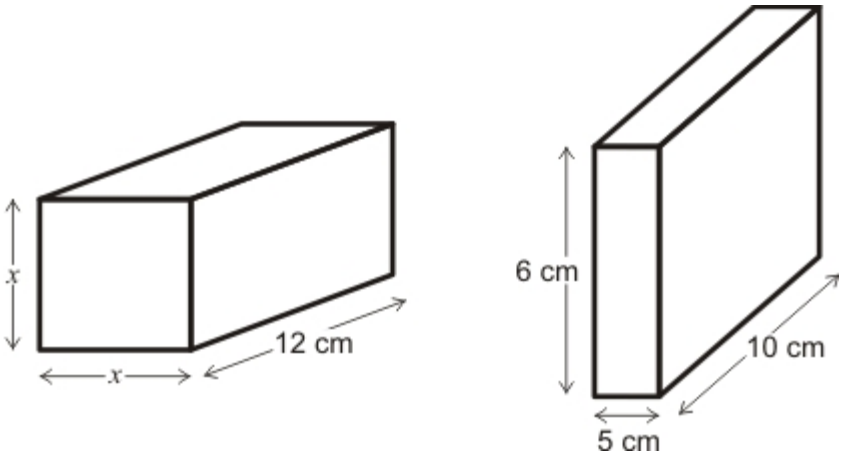
more

1 mark

5. The two cuboids have the same volume.

Calculate the length x.

(Not to scale)



Show your method

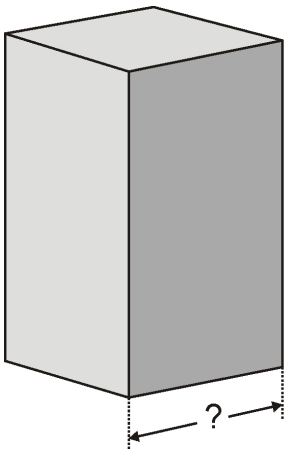
cm

2 marks

6. A cuboid has a **square base**.

It is **twice as tall** as it is **wide**.

Its volume is **250 cubic centimetres**.



Not actual size

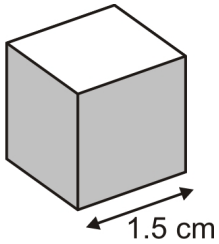
Calculate the **width** of the cuboid.

Show your method

cm

2 mark

7. Amit has some small cubes.

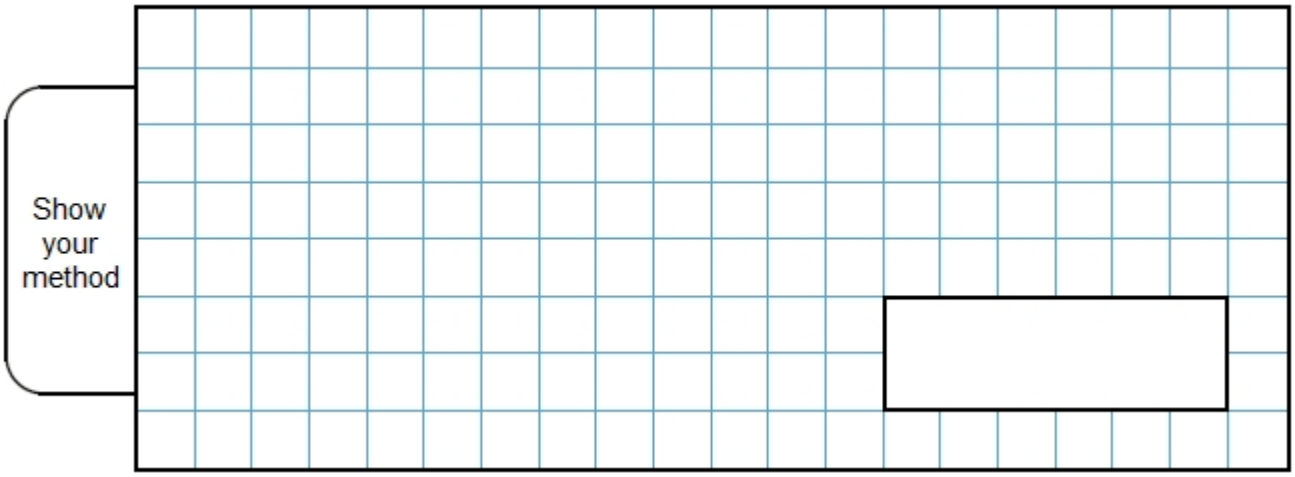


The edge of each cube is **1.5 centimetres.**

He makes a larger cube out of the small cubes.

The **volume** of this larger cube is **216 cm^3.**

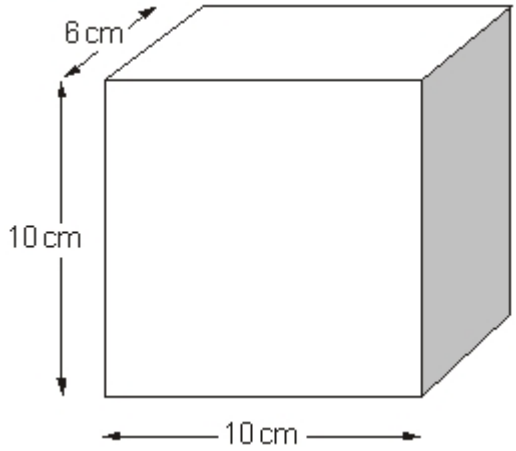
How many small cubes does he use?



2 mark

8. **Volume**

(a) The diagram shows a cuboid.



Not drawn accurately

What is the volume of this cuboid?

2 marks

(b) The volume of a different cuboid is **half the volume** of the cuboid in part (a).

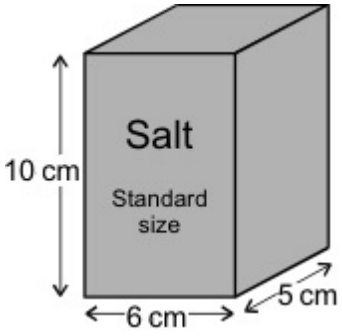
What could the **dimensions** of this different cuboid be?

_____ cm by _____ cm by _____ cm

1 mark

9. **Salt**

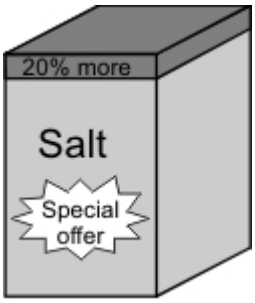
(a) What is the volume of this **standard size** box of salt?



cm^3

1 mark

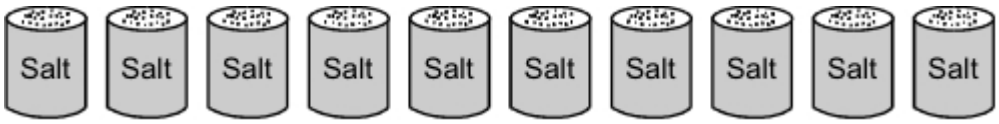
(b) What is the volume of this **special offer** box of salt, which is **20% bigger**?



cm^3

2 marks

The **standard size** box contains enough salt to fill up **10** salt pots



(c) How many salt pots may be filled up from the **special offer** box of salt?

1 mark

Mark schemes

1. Award **TWO** marks for the correct answer of 720

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

- 3 × 4 × 6 = 72
  8 × 9 × 11 = 792
  792 – 72 =

Award **ONE** mark for sight of 792

*Answer need not be obtained for the award of **ONE** mark.*

Up to 2m

[2]

2. Award **TWO** marks for the correct answer of 9

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

- 6 × 6 × 6 = 216
  216 ÷ 6 = 36
  36 ÷ 4

OR

- 216 ÷ 24

*Answer need not be obtained for the award of **ONE** mark.*

Up to 2m

[2]

3. 18

2

or

1728 seen (the volume of the cube/cuboid)

or

Shows or implies a complete correct method, eg:

- 12 × 12 × 12 = 1440 (error)

  1440 = 16 × 6 × height

  height = 1440 ÷ (16 × 6) = 15

- 12 × 12 × 12 ÷ 16 ÷ 6

! Measures

See guidance

1

[2]

4. (a) Gives three integers other than 2, 2, 6 (in any order) whose product is 24, eg:

- 1, 1, 24
- 1, 24, 1
- 1, 2, 12
- 1, 3, 8
- 1, 4, 6
- 2, 3, 4

! Non-integer(s) used

As this shows understanding of volume, condone provided the three values given have a product of 24

eg, accept

- *1.5, 2, 8*

1

(b) 7

1

[2]

5. 5 cm

2

or

sight of 300(cm^3)
Or
Complete correct method, e.g.

- $5 \times 6 \times 10 \div 12 = 25$
  $\sqrt{25}$ = wrong answer
- $50 \div 2 = 25$
  $x \times x = 25$
  x = wrong answer

1

[2]

6. Award **TWO** marks for the correct answer of 5 cm

If the answer is incorrect award **ONE** mark for evidence of an appropriate method, eg

$2n \times n \times n = 250$

so

$n \times n \times n = 125$

The calculation need not be completed for the award of the mark, but $n \times n \times n = 125$ ***OR*** *$n^3 = 125$ must be reached.*

Up to 2

[2]

7. Award **TWO** marks for the correct answer of 64

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, eg

$216 = 6 \times 6 \times 6$
$6 \div 1.5 = 4$
number of cubes $= 4 \times 4 \times 4$
OR $1.5 \times 1.5 \times 1.5 = 3.375$
number of cubes $= 216 \div 3.375$

Calculation need not be completed for the award of the mark.

Up to 2

[2]

8.

(a) Gives the correct volume, ie 600

1

Gives the correct units
eg

- cm^3
- Cubic centimetres

! ***The value of 600 is shown to the power 3***
eg
- *600^3*
- *$600^3 cm$*

Assume the power refers to the units, ie mark as 1, 0

Accept informal but unambiguous language
eg
- *Centimetres cubed*
- *Cube centimetres*
- *cc*

1

(b) Gives three values that multiply to 300
eg

- 3 cm by 10 cm by 10 cm
- 6 cm by 5 cm by 10 cm

Accept follow through as three values that multiply to half their volume for part (a)

Accept fractions or decimals

1

[3]

9.

(a) Indicates 300

Working need** not **be shown for the award of this mark.

Ignore use of cubed sign eg

- *300^3*

***Do not accept** incorrect attempt to convert to different units eg*

- *3*
- *30*

1

(b) **For 2m** indicates 360.

For only 1m shows 60 as 20% of 300 in working or given 60 as volume of the box.

Working need not be shown for the award of any marks.

***For 2m or 1m** allow follow through from part (a), with correct rounding or truncation.*

Award only 1m *for correct calculation indicated but not evaluated or incorrectly evaluated eg*

- *12 × 6 × 5 = 432*
- *1.2 × 300*
- *300 × 20 ÷ 100 + 300*

Do not accept *height calculated as 12 with no further attempt to find the volume.*

2

(c) Indicates 12 salt pots.

Working need *not* ***be shown for the award of this mark.***

Allow follow through from part (a) or (b) with correct rounding or truncation.

Accept any indication eg

- *2 more salt pots drawn on diagram given.*

Accept correct description eg

- *2 more salt pots.*

Do not accept *fractions of a salt pot.*

Do not accept *fewer than 10 salt pots eg*

- *2 salt pots.*

1

[4]