

## Answers for Y6 Maths (wb 29.06.20)

### Morning Mental Maths

Monday	Tuesday	Wednesday	Thursday	Friday
1. 360	11. 144	21. 84	31. 220	41. 504
2. 7	12. 5	22. 8	32. 3	42. 6
3. 0.612	13. 0.47	23. 9.51	33. 1.6587	43. 0.012
4. 1.9%	14. 5%	24. 0.408	34. 7.1%	44. 0.092
5. 0.11	15. 0.60 or 0.6	25. 0.33	35. 0.02	45. 0.10 or 0.1
6. 35/100 or 7/20	16. 7/100	26. 29/100	36. 80/100 or 8/10 or 4/5	46. 623/1000
7. 0.71	17. 0.35	27. 0.42	37. 0.69	47. 0.84
8. $-8^{\circ}\text{C}$	18. $-13^{\circ}\text{C}$	28. $-17^{\circ}\text{C}$	38. $-4^{\circ}\text{C}$	48. $-39^{\circ}\text{C}$
9. 69	19. 91	29. 235	39. 378	49. 367
10. 12	20. 8	30. 4	40. 3	50. 11

### Monday

Answers provided at end of download

### Tuesday

1 Use the words to complete the sentences.

perimeter

$\text{cm}^2$

cm

m

area

$\text{m}^2$

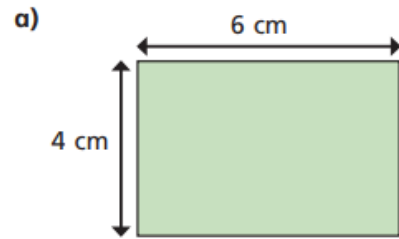
inside

around

Area is the amount of space inside a two-dimensional shape. It can be measured in units such as  $\text{cm}^2$  or  $\text{m}^2$

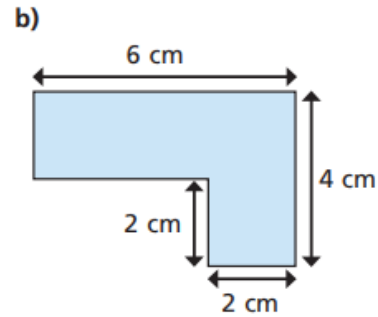
Perimeter is the distance around a two-dimensional shape. It can be measured in units such as cm or m

2 Work out the areas and perimeters of the shapes.



perimeter =  cm

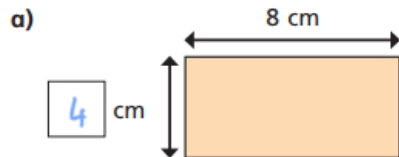
area =  cm<sup>2</sup>



perimeter =  cm

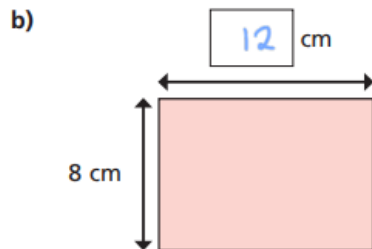
area =  cm<sup>2</sup>

3 Work out the missing values.



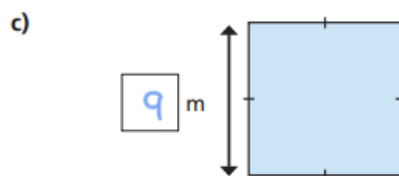
area = 32 cm<sup>2</sup>

perimeter =  cm



area =  cm<sup>2</sup>

perimeter = 40 cm

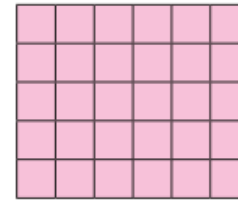


area =  m<sup>2</sup>

perimeter = 36 m

4 Work out the areas and perimeters of the shapes.

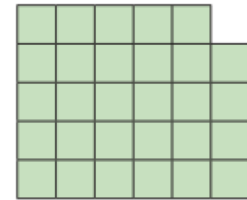
Shape A



area =  cm<sup>2</sup>

perimeter =  cm

Shape B



area =  cm<sup>2</sup>

perimeter =  cm

What do you notice?

5



Tommy

If you start with a rectilinear shape, when you increase the area, the perimeter will increase.

Amir

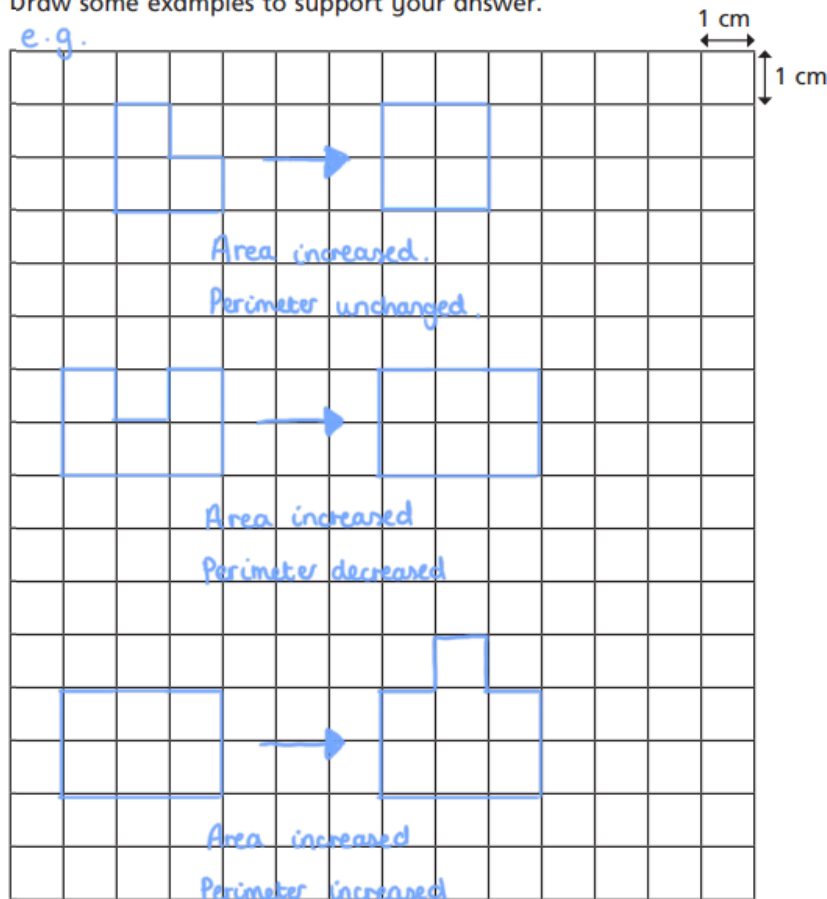


It depends on the shape.

Who do you agree with? Amir

Draw some examples to support your answer.

e.g.

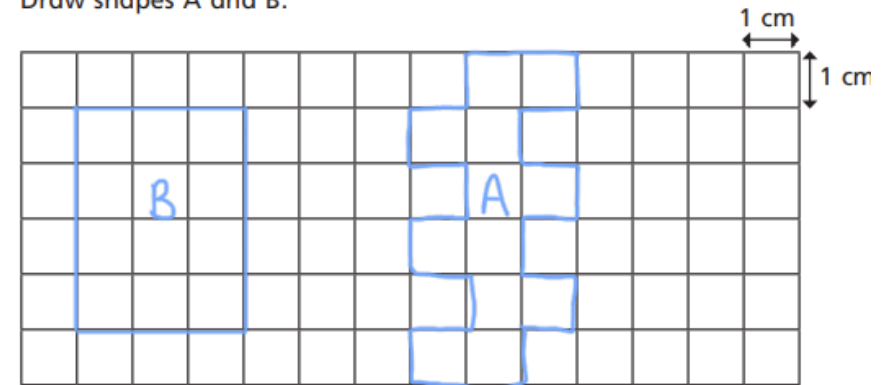


6

Two rectilinear shapes, A and B, each have an area of 12 squares.

- Shape A has the largest perimeter possible.
- Shape B has the smallest perimeter possible.

Draw shapes A and B.



What do you notice?

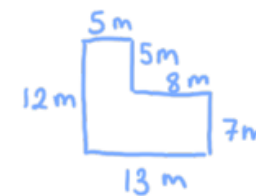
7

Mr Jones has 50 m of fencing.

He wants to make a rectilinear enclosure using all the fencing.

- a) Draw an example of a shape he could make. Give units on your diagram.

e.g.



- b) What is the greatest possible area of the enclosure?  $156 \text{ m}^2$

- c) What is the smallest possible area of the enclosure?  $24 \text{ m}^2$

## Extension Challenges

We have provided the full mark scheme so that you can decide how many marks to award yourself and see the different possible solutions.

Award **THREE** marks for the correct answer of 3076 square metres.

If the answer is incorrect, award **TWO** marks for:

- sight of 9184 as evidence of the multiplication for the first step completed correctly.

OR

- evidence of an appropriate method which contains no more than **ONE** arithmetical error, e.g:

$$\begin{array}{r} 112 \\ \times \quad 82 \\ \hline 8960 \\ \quad 224 \\ \hline 9187 \quad (\text{error}) \end{array}$$

$$\begin{array}{r} 9187 \\ - \quad 6108 \\ \hline 3079 \end{array}$$

- Award **ONE** mark for evidence of an appropriate method which contains more than **ONE** arithmetical error.

*Do not award any marks if the error is in the place value of the multiplication, e.g. the omission of the final zero when multiplying by tens, e.g.*

$$\begin{array}{r} 112 \\ \times \quad 82 \\ \hline 896 \\ \quad 224 \\ \hline \end{array}$$

wrong answer

**Commentary:** As well as a range of 1 mark and 2 mark questions, one of the questions in a suite of tests may now attract three marks. The solution to a 3 mark question may involve more steps or, as in this example, more complex calculations.

Award **TWO** marks for the correct answer of 82

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

$$(4 \times 10) + (7 \times 6)$$

OR

$$(10 \times 10) - (3 \times 6)$$

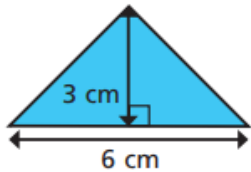
*Answer need not be obtained for the award of the mark.*

Up to 2

Up to 3m

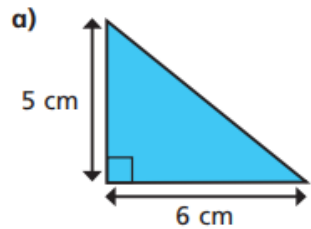
Wednesday

- 1 Calculate the area of the triangle.

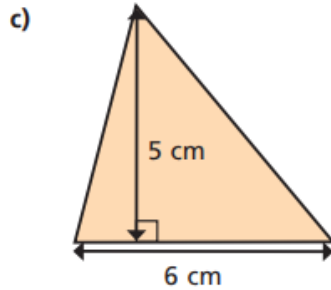


area =  cm<sup>2</sup>

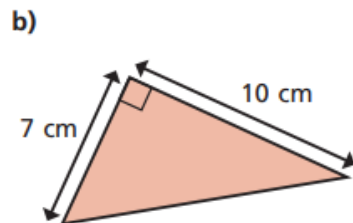
- 2 Calculate the area of the triangles.



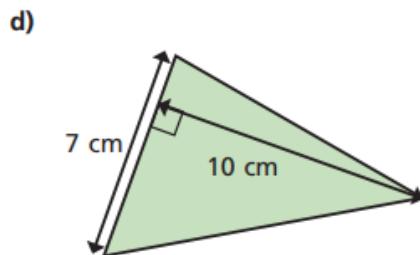
area =  cm<sup>2</sup>



area =  cm<sup>2</sup>

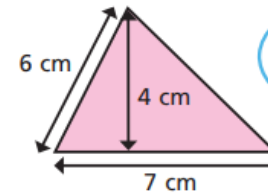


area =  cm<sup>2</sup>



area =  cm<sup>2</sup>

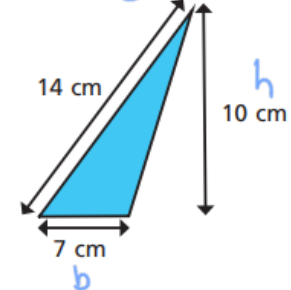
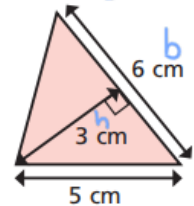
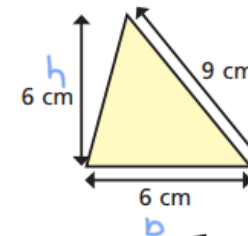
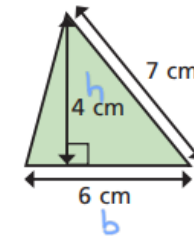
- 3 What mistake has Dora made?



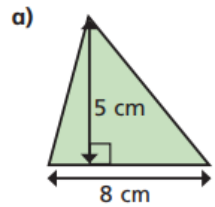
To find the area you do  
 $7 \times 6 \div 2 = 21 \text{ cm}^2$



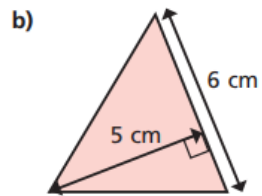
- 4 Label the base of each triangle  $b$ .  
Label the perpendicular height  $h$ .



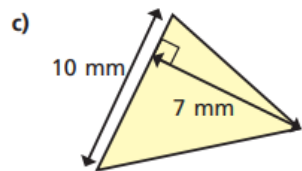
6 Calculate the area of the triangles.



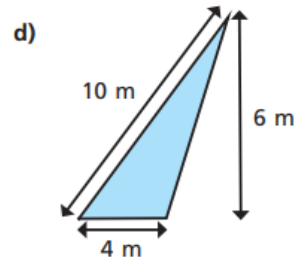
area =  $\boxed{20}$  cm<sup>2</sup>



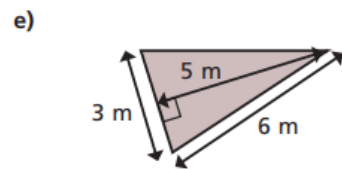
area =  $\boxed{15}$  cm<sup>2</sup>



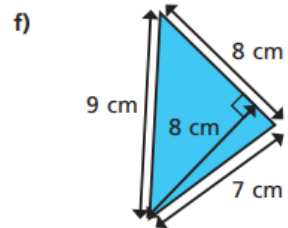
area =  $\boxed{35}$  mm<sup>2</sup>



area =  $\boxed{12}$  m<sup>2</sup>

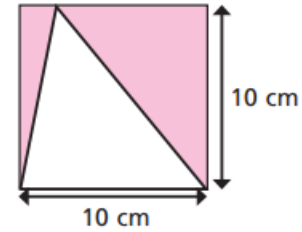


area =  $\boxed{7.5}$  m<sup>2</sup>



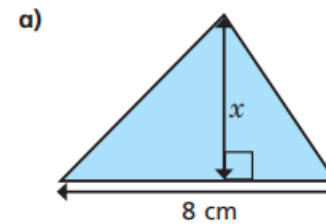
area =  $\boxed{32}$  cm<sup>2</sup>

7 Find the area of the shaded region.

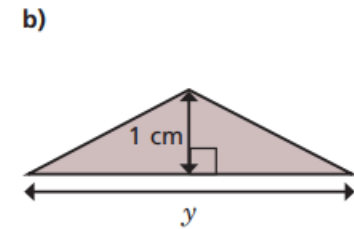


area =  $\boxed{50}$  cm<sup>2</sup>

8 The area of each triangle is 12 cm<sup>2</sup>. Find the missing lengths.

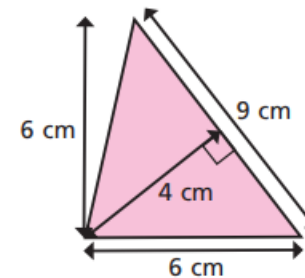


$x = \boxed{3}$  cm



$y = \boxed{24}$  cm

9 Show two ways you can work out the area of the triangle.



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

$$\frac{6 \times 6}{2} = 18 \text{ cm}^2$$

Compare answers with a partner.

## Extension Challenges

We have provided the full mark scheme so that you can decide how many marks to award yourself and see the different possible solutions.

A rectangle with area  $6 \text{ cm}^2$

*A rectangle must be drawn but need not be shaded.*

12

2

**or**

Shows or implies a complete correct method, eg:

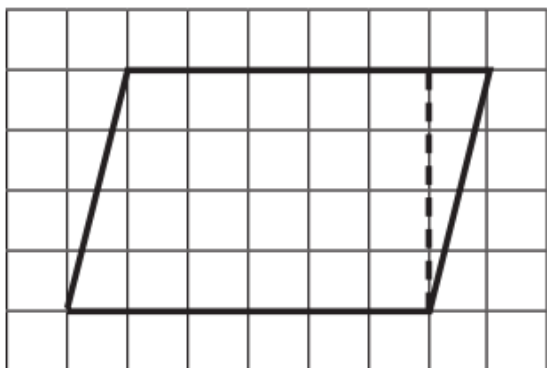
- $4 \times 6 \div 2 = 13$  (*error*)
- $60 - (10 \times 6 \div 2) - (6 \times 6 \div 2)$
- $60 - 48$

As you can see, even if you do not reach the correct answer of 12, you may still get one mark for your workings. Here is an example containing a common error.

1

Thursday

- 1 On a piece of squared paper, copy this parallelogram and cut it out.



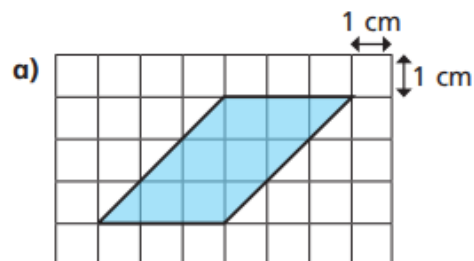
- a) Create a rectangle by cutting off the right-angled triangle and moving it.

- b) Complete the sentences.

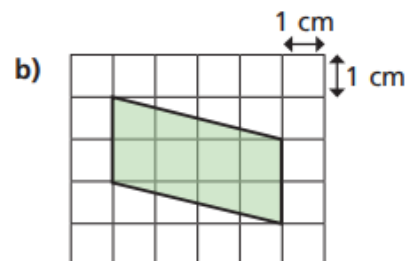
The area of the rectangle is 24 squares.

The area of the parallelogram is 24 squares.

- 2 Calculate the areas of the parallelograms.

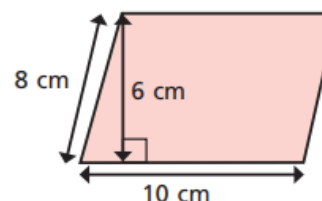


area = 9 cm<sup>2</sup>



area = 8 cm<sup>2</sup>

- 3 Huan is finding the area of the parallelogram.



$$10 \times 8 = 80 \text{ cm}^2$$

- a) What mistake has Huan made?

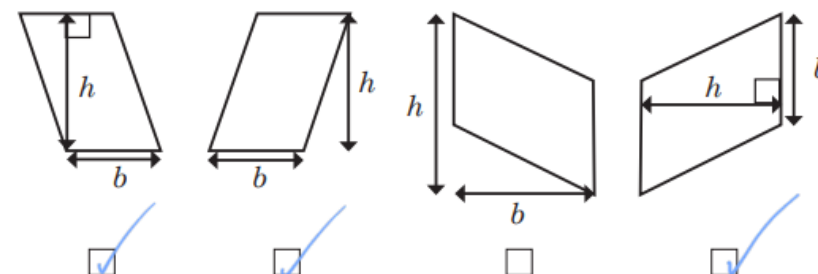
He hasn't used the perpendicular height.

- b) What is the correct answer?

area = 60 cm<sup>2</sup>

- 4 Esther has labelled the bases and heights for four parallelograms.

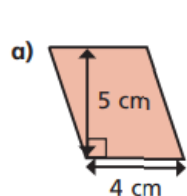
Three are correct; one is incorrect. Tick the shapes that have been correctly labelled.



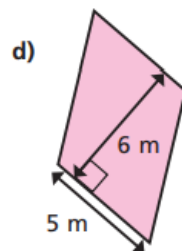
Explain to a partner why one is incorrect.



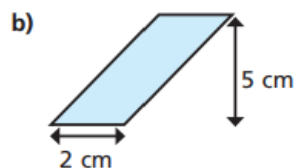
5 Calculate the areas of the parallelograms.



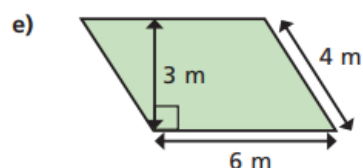
area =   $\text{cm}^2$



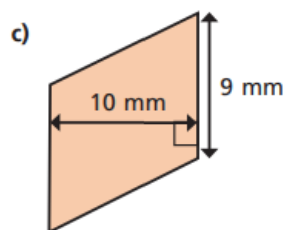
area =   $\text{m}^2$



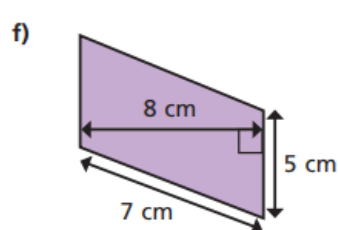
area =   $\text{cm}^2$



area =   $\text{m}^2$

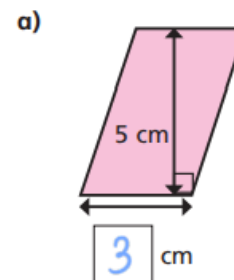


area =   $\text{mm}^2$

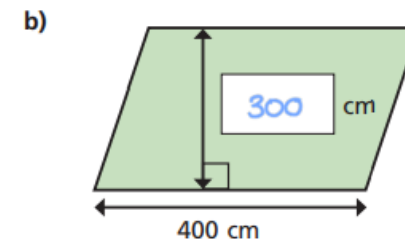


area =   $\text{cm}^2$

6 Find the missing lengths.

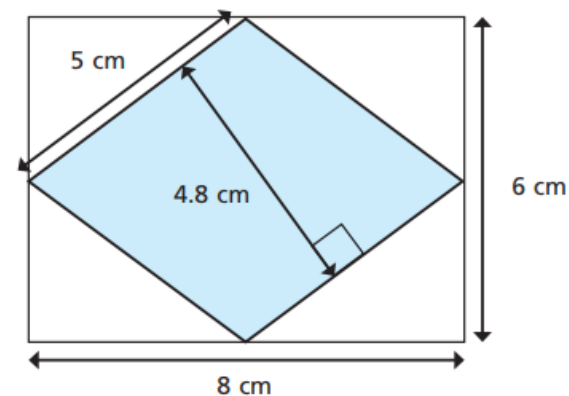


area =  $15 \text{ cm}^2$



area =  $12 \text{ m}^2$

7 Here is a rhombus inside a rectangle.



a) Calculate the area of the rhombus.

area =   $\text{cm}^2$

b)

The area of the rhombus is half the area of the rectangle. This means that it is a special triangle.

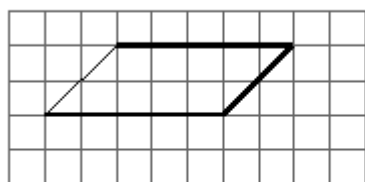


Explain to a partner why Mo is wrong.

## Extension Challenges

We have provided the full mark scheme so that you can decide how many marks to award yourself and see the different possible solutions.

Diagram completed as shown below:



*Accept slight inaccuracies in drawing provided the intention is clear.*

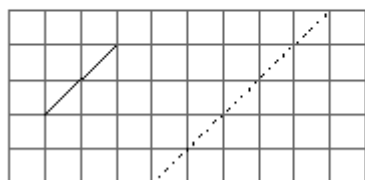
*The shape need not be shaded.*

Any parallelogram with a perpendicular height of 4 cm.

*Do not accept a rectangle.*

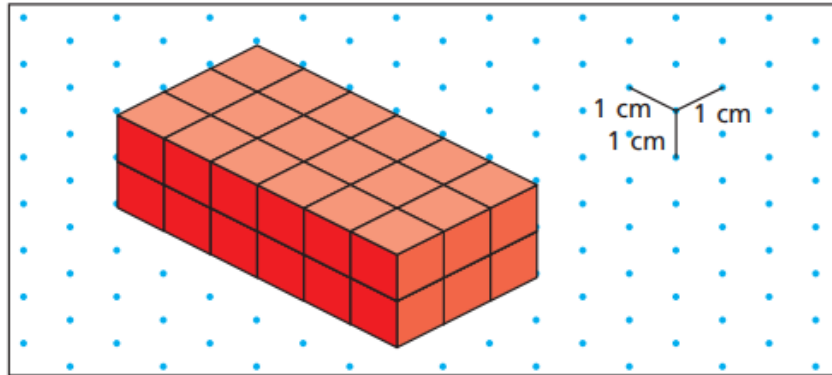
**OR**

any parallelogram using the given line, and part of the broken line shown below.



Friday

- 1 Here is a cuboid made up of cubes.

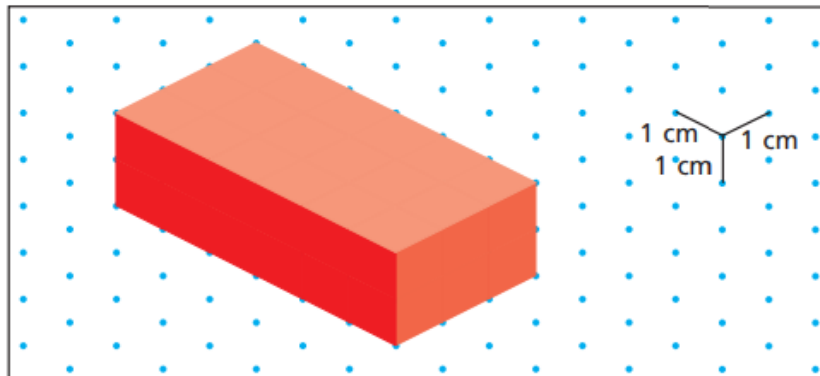


- a) What is the volume of the cuboid?

volume =   $\text{cm}^3$

- b) Explain your method for finding the volume.

- c) What is the volume of this cuboid?



volume =   $\text{cm}^3$

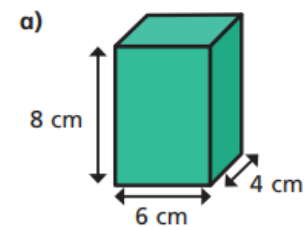
- 2 Find the volume of the cuboids.

You can make them with cubes if it helps.

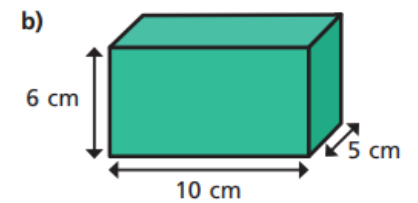
a)   
volume =   $\text{cm}^3$

b)   
volume =   $\text{cm}^3$

- 3 Calculate the volumes of the cuboids.

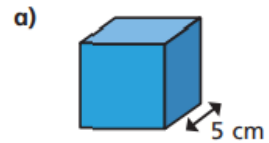


volume =   $\text{cm}^3$

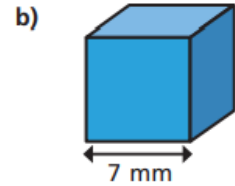


volume =   $\text{cm}^3$

- 4 Calculate the volumes of the cubes.

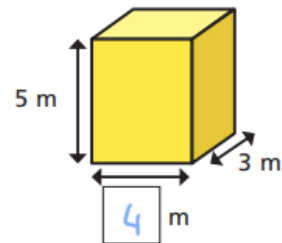


volume =   $\text{cm}^3$

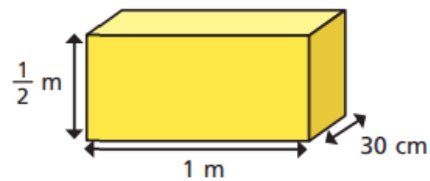


volume =   $\text{mm}^3$

- 5 The volume of the cuboid is  $60 \text{ m}^3$ .  
Find the missing length.

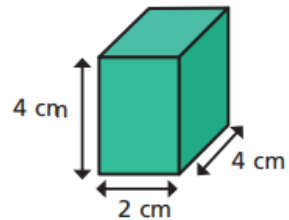


- 6 Calculate the volume of the cuboid.

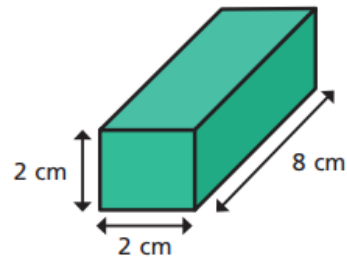


volume =   $\text{cm}^3$

- 7 a) Calculate the volumes of the two cuboids.



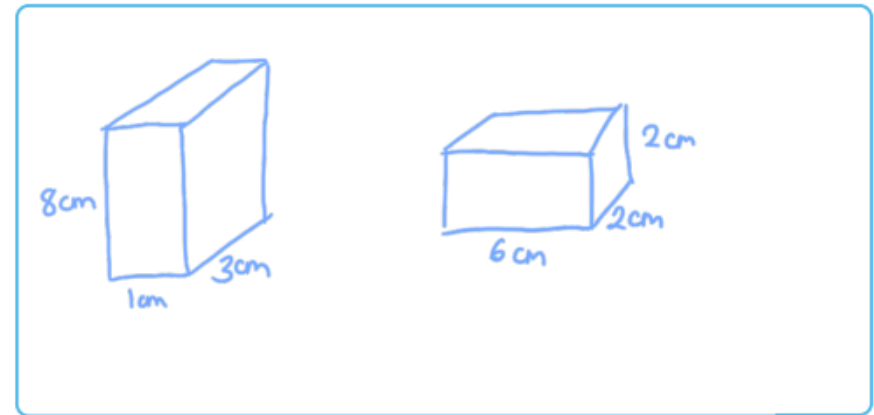
$\text{cm}^3$



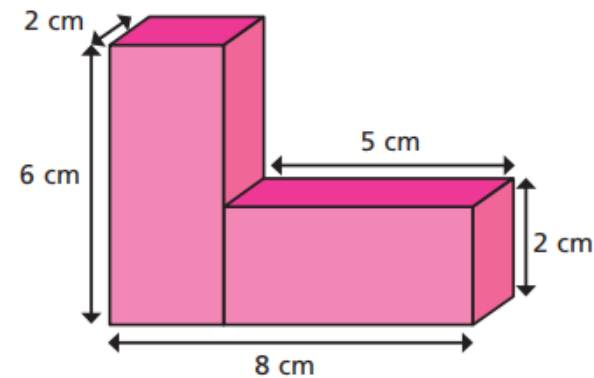
$\text{cm}^3$

- b) Draw two different cuboids that have a volume of  $24 \text{ cm}^3$

e.g.



- 8 Calculate the total volume of the shape.



volume =   $\text{cm}^3$

## Extension Challenges

We have provided the full mark scheme so that you can decide how many marks to award yourself and see the different possible solutions.

125

[1]

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.

- $6 \times 6 \times 6 = 216$   
 $216 \div 6 = 36$   
 $36 \div 4$

OR

- $216 \div 24$

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

Up to 2m

[2]

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]