



W.C. 22nd June

Maths Answers

Monday

Fluent in 5

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $674.32 \times 100 = 67,432$ (M)

2. $345 \div 13 = 26 \text{ r } 7$ (W)

3. $\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$ (M)

4. $6.53 + 1.34 = 7.87$ (M)

5. $91.32 + 15.84 = 107.16$ (W)

6. $2^3 = 8$ (M)

Mild

Area and perimeter of rectilinear shapes

Perimeter

1) 30 cm

2) 26 cm

3) 38 cm

4) 40 cm

5) 56 cm

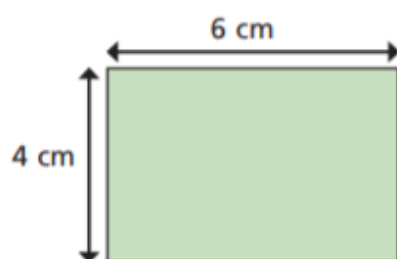
6) 34 cm



1	Area a: 4cm² Area b: 10cm² Total: 14cm²
2	Area a: 4cm² Area b: 6cm² Total: 10cm²
3	Area a: 10cm² Area b: 3cm² Total: 13cm²
4	Area a: 12cm² Area b: 24cm² Total: 36cm²
5	Area a: 9cm² Area b: 10cm² Total: 19cm²
6	Area a: 20cm² Area b: 18cm² Total: 38cm²

2 Work out the areas and perimeters of the shapes.

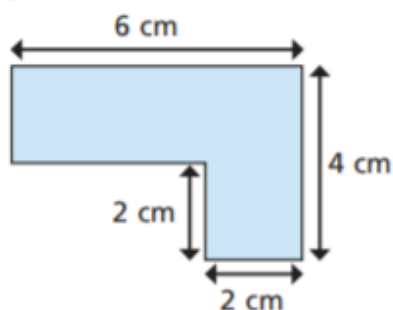
a)



perimeter = cm

area = cm²

b)



perimeter = cm

area = cm²

Shape A

Shape B

Largest area = $4\text{cm} \times 5\text{cm} = 20\text{cm}^2$ smallest area = $8\text{cm} \times 1\text{cm} = 8\text{cm}^2$

Medium

Perimeter

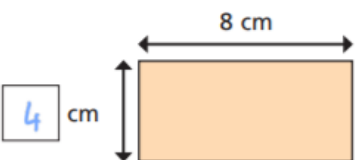
- 1) 30cm
- 2) 50cm
- 3) 54cm
- 4) 40cm
- 5) 56cm
- 6) 62cm

Area

- 1 Total: 42cm^2
- 2 Total: 35cm^2
- 3 Total: 38cm^2
- 4 Total: 42cm^2
- 5 Total: 38cm^2
- 6 Total: 96cm^2

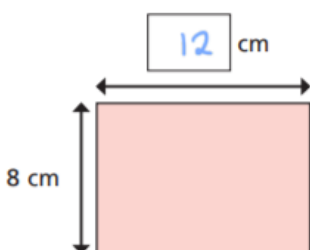
Work out the missing values.

a)



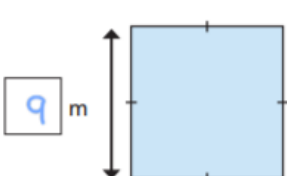
area = 32 cm^2
perimeter = 24 cm

b)



area = 96 cm^2
perimeter = 40 cm

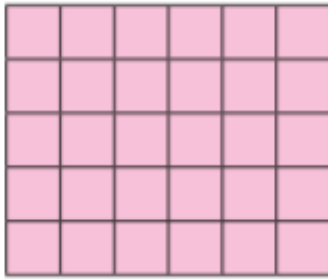
c)



area = 81 m^2
perimeter = 36 m

Work out the areas and perimeters of the shapes.

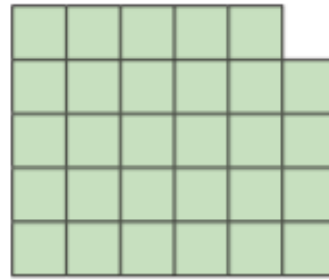
Shape A



area = cm^2

perimeter = cm

Shape B



area = cm^2

perimeter = cm

Shape B

Largest area = $20\text{cm} \times 21\text{cm} = 420\text{cm}^2$ smallest area = $40\text{cm} \times 1\text{cm} = 40\text{cm}^2$

Spicy

Perimeter

- 1) 58cm
- 2) 94cm
- 3) 210cm

Area

- 1 Total: 57cm^2
- 2 Total: 88cm^2
- 3 Total: 94cm^2
- 4 Total: 104cm^2

$$\text{Area} = 23 \times 9 = 207\text{m}^2,$$

$$\text{Perimeter} = 64\text{m}.$$

Shape A

$$\text{Largest area} = 17\text{cm} \times 17\text{cm} = 289\text{cm}^2 \quad \text{smallest area} = 33\text{cm} \times 1\text{cm} = 33\text{cm}^2$$

Disagree with Cally. Some squares have equal area and perimeter, for example $4\text{cm} \times 4\text{cm}$, however others do not, such as $5\text{cm} \times 5\text{cm}$.

Disagree with Brendan. Some rectangles have equal area and perimeter, for example $3\text{cm} \times 6\text{cm}$, however others do not, such as $7\text{cm} \times 5\text{cm}$.

Tuesday

Fluent in 5

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $7 \times 9 = 63$ (M)
2. $653 \div 100 = 6.53$ (M)
3. $693 \div 18 = 38 \text{ r } 9$ or $38 \frac{1}{2}$ or 38.5 (W)
4. $\frac{2}{5} \times \frac{1}{3} = \frac{2}{15}$ (M)
5. $4^3 = 64$ (M)
6. $87.32 + 13.78 = 101.1$ (W)

Calculate the area of triangles

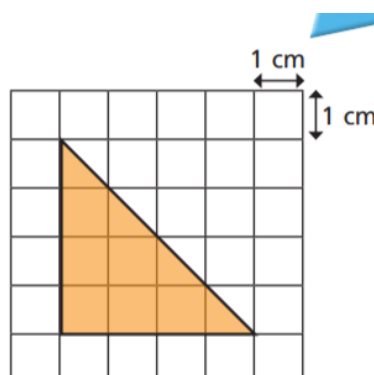
Mild

- 1 Complete the sentences to describe the triangle.

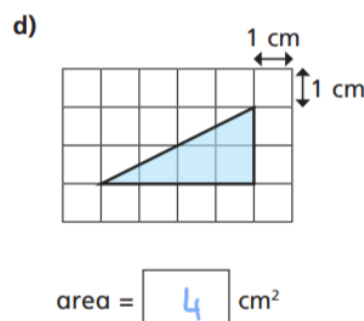
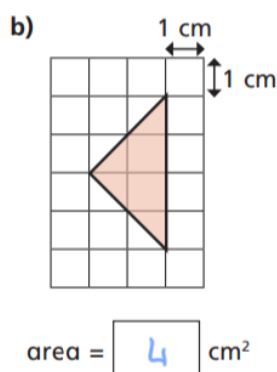
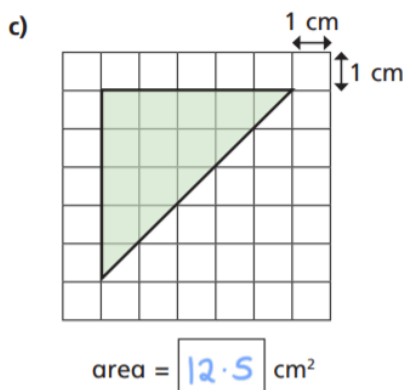
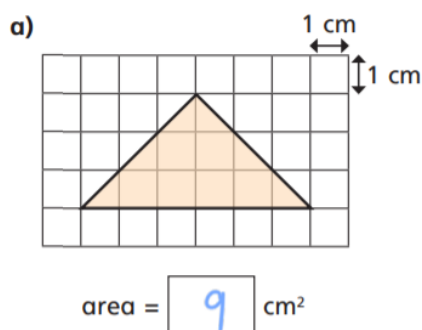
The triangle has full squares.

The triangle has half squares.

The area of the triangle is cm^2

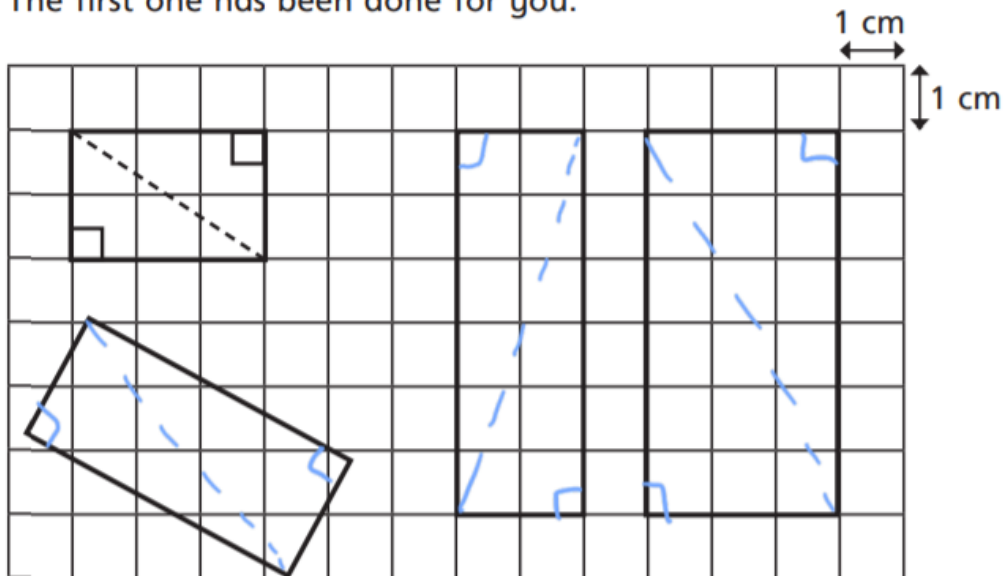


- 2 Count squares to work out the area of each triangle.



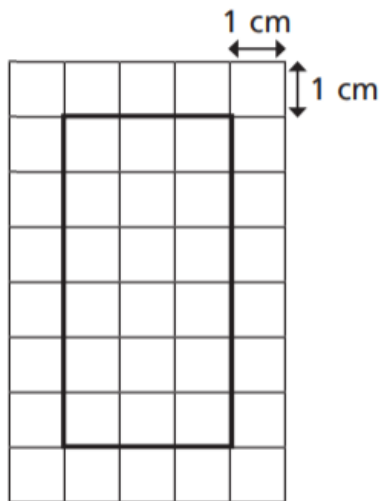
1

- a) Divide each rectangle into two right-angled triangles. The first one has been done for you.

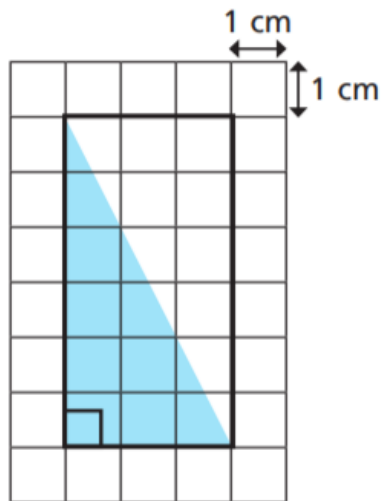


2

- a) Calculate the area of the rectangle and the triangle.



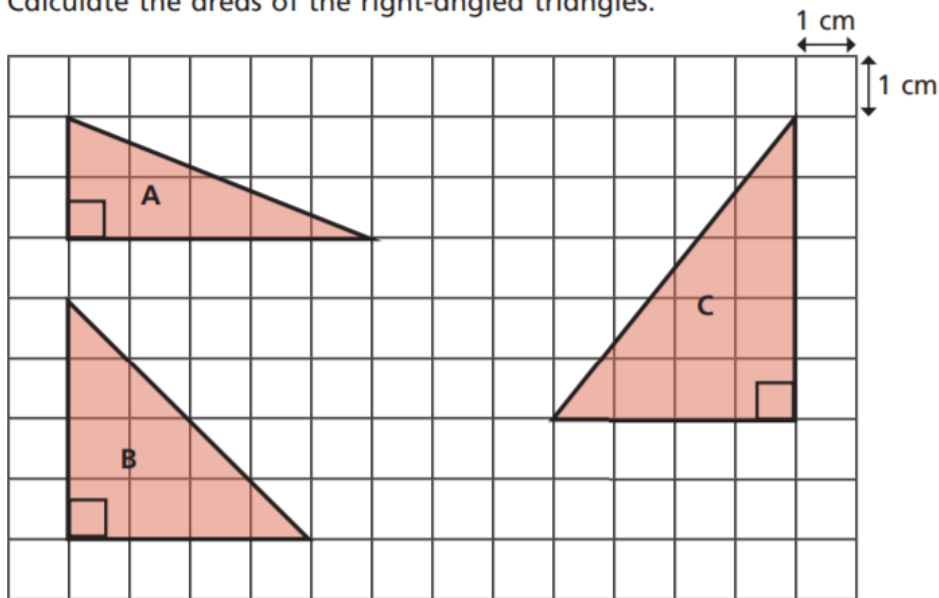
area = cm^2



area = cm^2

3

Calculate the areas of the right-angled triangles.

triangle A = cm^2 triangle C = cm^2 triangle B = cm^2

Ben has only counted the full squares to work out the area and has not added the half squares. The correct answers are: $A = 2 \text{ cm}^2$, $B = 9 \text{ cm}^2$

Sadia has added the lengths of the sides instead of calculating the area. The correct answers are: $A = 4 \text{ cm}^2$, $B = 8 \text{ cm}^2$

False, the correct answer is 21 cm^2 .

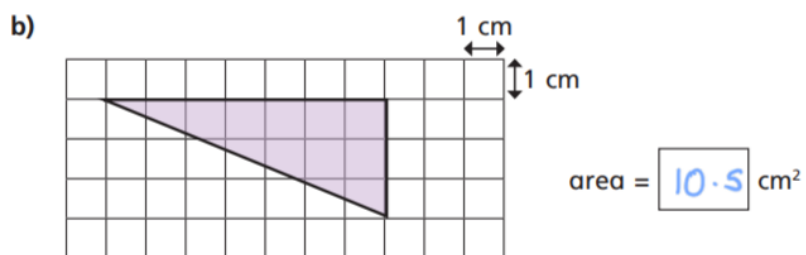
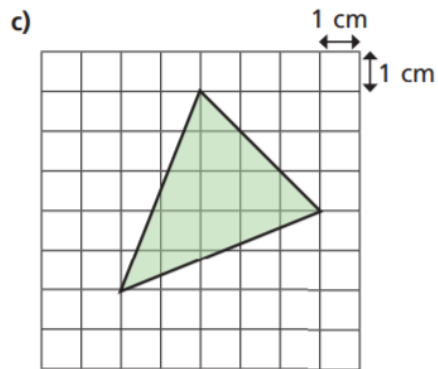
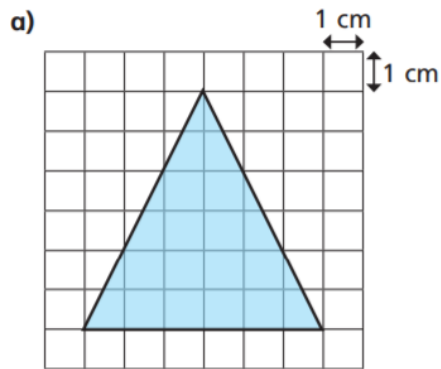
1a. 10 cm^2

2a. False, the area is 20 cm^2

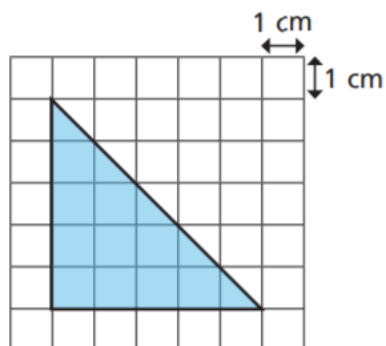
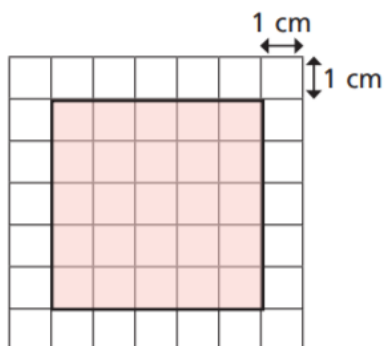
3a. 12 cm^2

Medium

Count squares to estimate the area of each triangle.



a) Work out the areas of the shapes by counting squares.

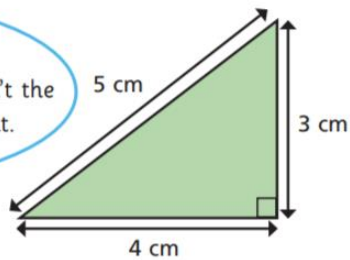


Jim has incorrectly counted the part squares. The correct answers are: A = 3cm² , B = 4.5cm² , C = 4.5cm² .

$$\text{Area} = \frac{1}{2} \times \text{base} \times \text{perpendicular height}$$

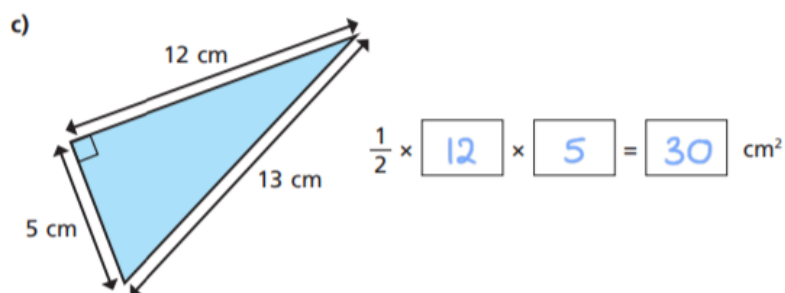
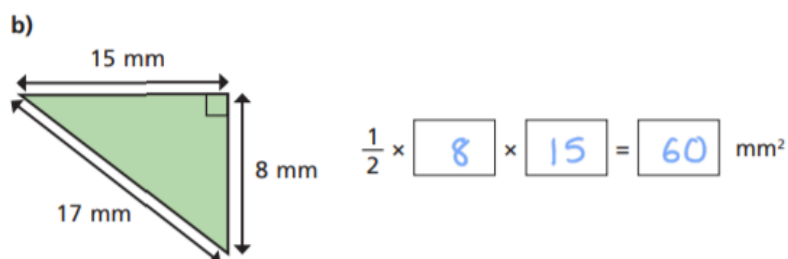
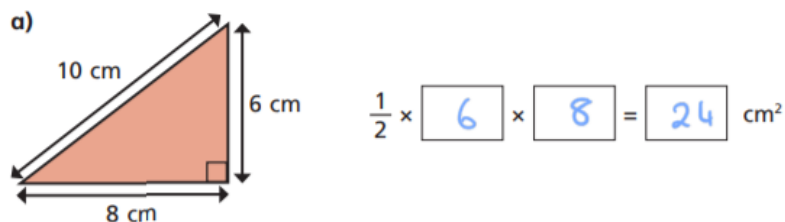
The area is $\frac{1}{2} \times 4 \times 3$.

You can ignore the 5 because it isn't the base or the perpendicular height.

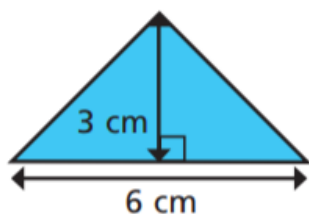


Do you agree with Whitney? yes

Insert the correct numbers into the formula to calculate the area of the triangle.

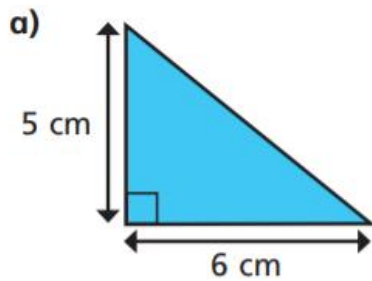


Calculate the area of the triangle.

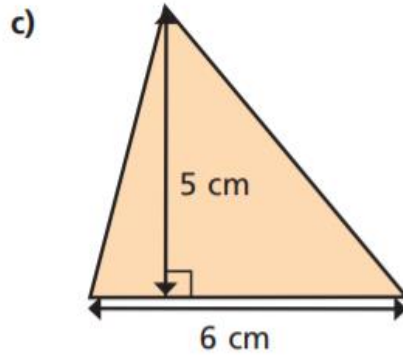


area = $\boxed{9}$ cm²

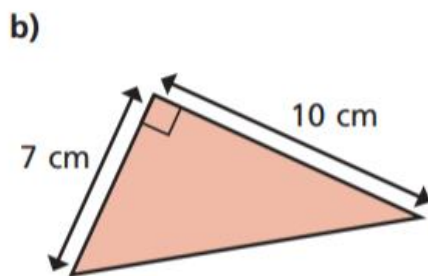
Calculate the area of the triangles.



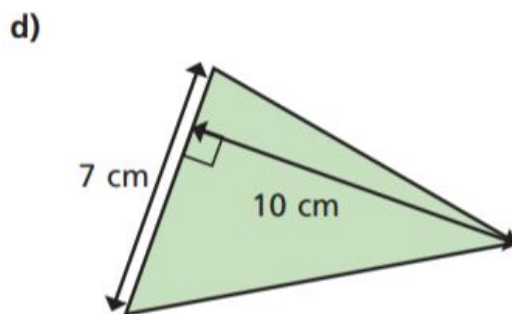
$$\text{area} = \boxed{15} \text{ cm}^2$$



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



$$\text{area} = \boxed{35} \text{ cm}^2$$



$$\text{area} = \boxed{35} \text{ cm}^2$$

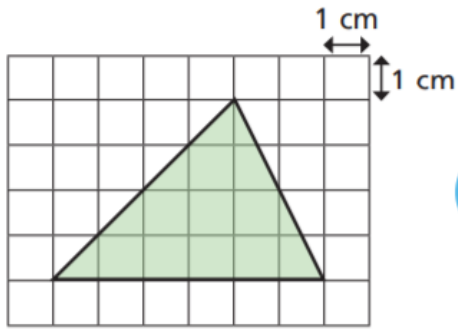
James is incorrect because $A = 48\text{cm}^2$ and $B = 45\text{cm}^2$. 48cm^2 is greater than 45cm^2 .

14cm^2

Amy is incorrect. She has multiplied the base by the height but has forgotten to divide the answer by 2. The area of the triangle is 44cm^2 .

$8\text{cm} \times 60\text{mm}$; $12\text{cm} \times 40\text{mm}$; $16\text{cm} \times 30\text{mm}$

Spicy



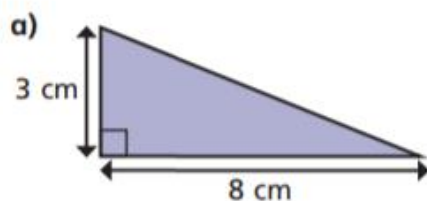
I estimate the size of the triangle to be about 16 cm^2



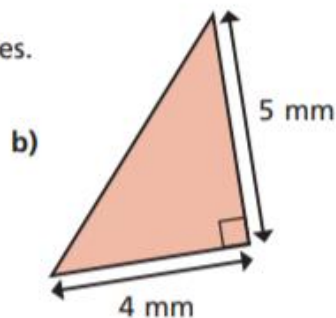
Do you agree with Eva's estimate? No

Ali has not multiplied the total squares by 3. They need to be multiplied because each square is worth 3 cm^2 . The correct answers are: $A = 18 \text{ cm}^2$, $B = 12 \text{ cm}^2$, $C = 22.5 \text{ cm}^2$.

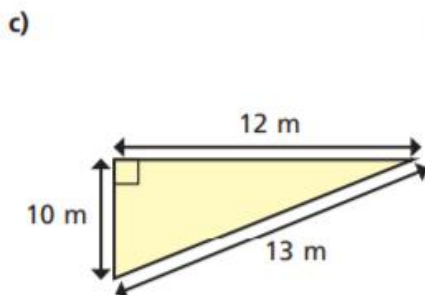
Calculate the areas of the triangles.



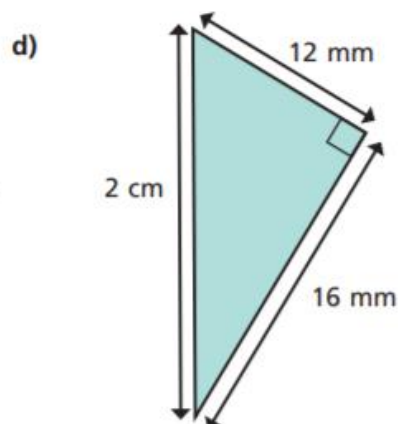
area = 12 cm^2



area = 10 mm^2

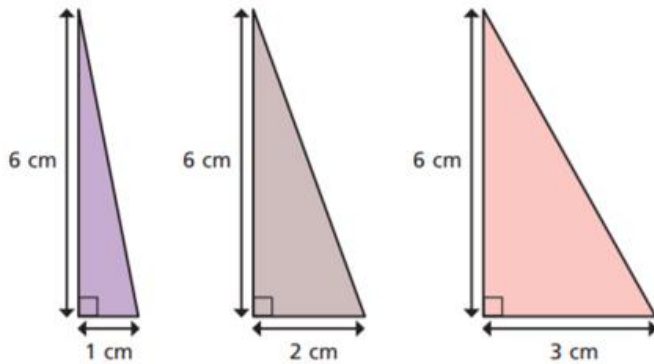


area = 60 m^2



area = 96 mm^2

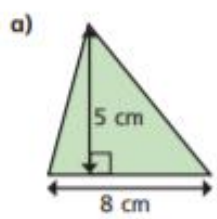
The width of the right-angled triangles is increasing by 1 cm.



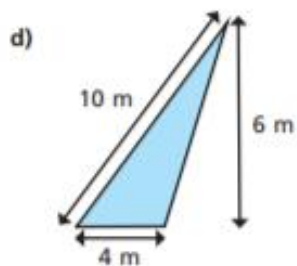
Investigate the pattern for the areas.

The numbers increase by 3 each time 3, 6, 9, 12 ...

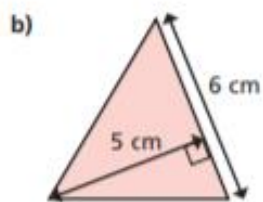
Calculate the area of the triangles.



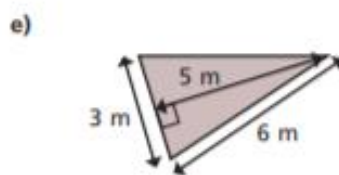
area = cm²



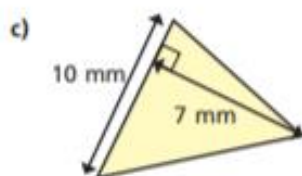
area = m²



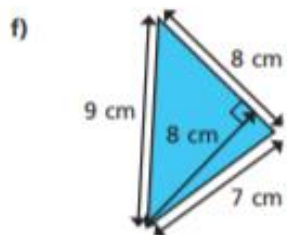
area = cm²



area = m²

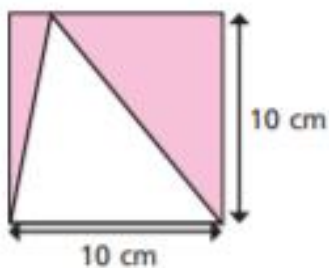


area = mm²



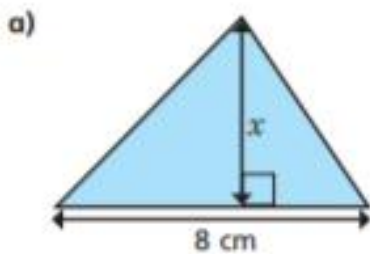
area = cm²

Find the area of the shaded region.

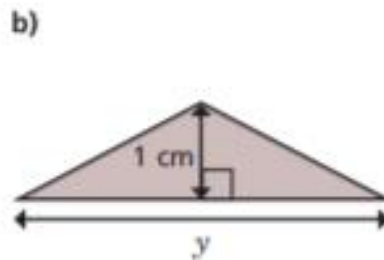


$$\text{area} = \boxed{50} \text{ cm}^2$$

The area of each triangle is 12 cm^2 . Find the missing lengths.



$$x = \boxed{3} \text{ cm}$$



$$y = \boxed{24} \text{ cm}$$

$$A = 3\text{cm} \times 8\text{cm} = 24 \text{ cm}^2 \div 2 = 12 \text{ cm}^2.$$

$$B = 4\text{cm} \times 9\text{cm} = 36 \text{ cm}^2 \div 2 = 18 \text{ cm}^2.$$

$$18 \text{ cm}^2 - 12 \text{ cm}^2 = 6 \text{ cm}^2.$$

$$18 \text{ cm}^2$$

Eddie is correct.

$$14\text{cm} \times 5\text{cm} = 70 \text{ cm}^2$$

$$70 \text{ cm}^2 \div 2 = 35 \text{ cm}^2.$$

$$12\text{cm} \times 6\text{cm}; 24\text{cm} \times 30\text{mm}; 9\text{cm} \times 80\text{mm}$$

Wednesday

Fluent in 5

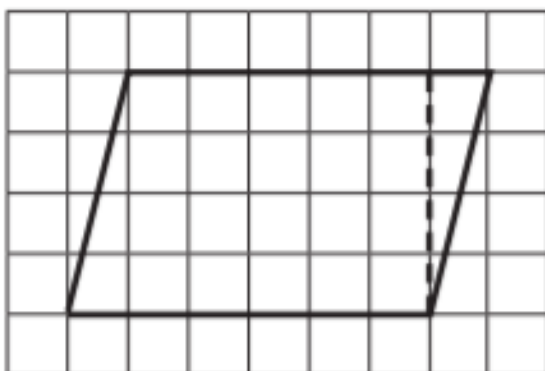
Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $65 + 85 = \mathbf{150}$ (M)
2. $9,932 - 3,876 = \mathbf{6,056}$ (W)
3. $\frac{2}{3} + \frac{2}{3} = \frac{4}{3}$ or $1\frac{2}{3}$ (M)
4. $653 \div 21 = \mathbf{31\ r\ 2}$ (W)
5. $\mathbf{660} + 200 = 860$ (M)
6. $\frac{4}{7} \times \frac{1}{2} = \frac{4}{14}$ (M)

Calculate the area of parallelograms

Mild

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



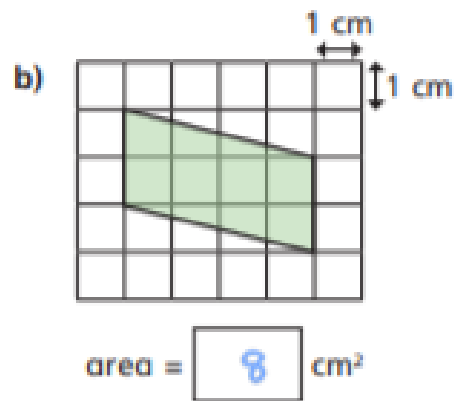
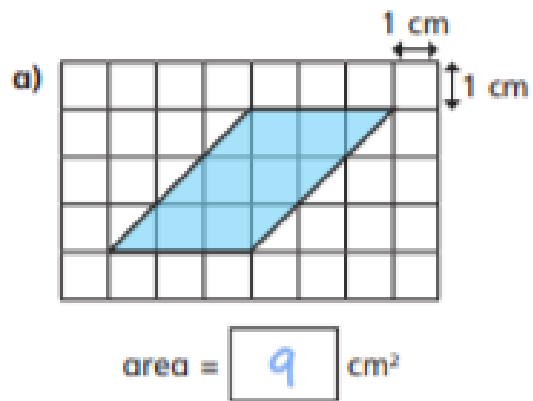
- a) Create a rectangle by cutting off the right-angled triangle and moving it.
- b) Complete the sentences.

The area of the rectangle is 24 squares.

The area of the parallelogram is 24 squares.

2

Calculate the areas of the parallelograms.

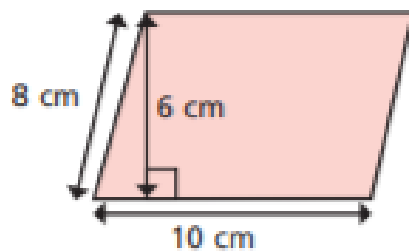


Number	Answer
1.	28cm ²
2.	30cm ²
3.	63cm ²
4.	6cm ²
5.	20cm ²
6.	18cm ²
7.	40cm ²
8.	15cm ²
9.	60cm ²
10.	96cm ²

Medium

- 1) a) $4 \times 2 = 8 \text{ cm}^2$
b) $5 \times 3 = 15 \text{ cm}^2$

Huan is finding the area of the parallelogram.



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

a) What mistake has Huan made?

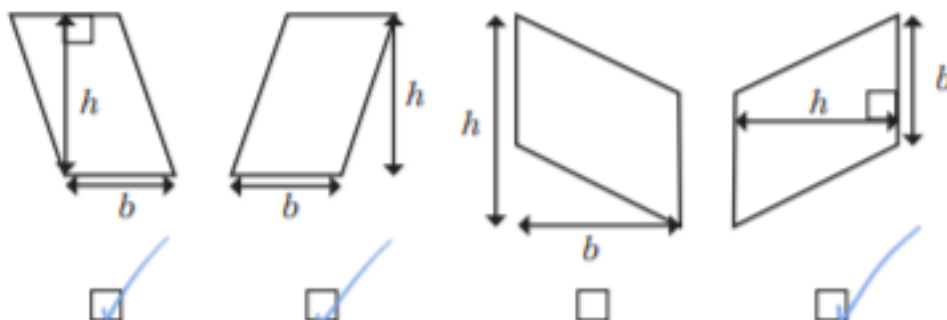
He hasn't used the perpendicular height.

b) What is the correct answer?

$$\text{area} = \boxed{60} \text{ cm}^2$$

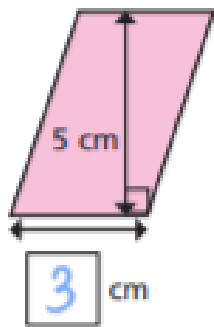
Esther has labelled the bases and heights for four parallelograms.

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



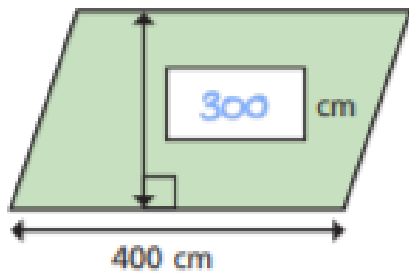
Find the missing lengths.

a)



area = 15 cm²

b)



area = 12 m²

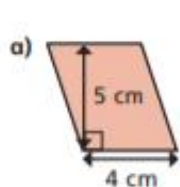
a) $14\text{ cm} \times 6\text{ cm} = 84\text{ cm}^2$

b) $7\text{ cm} \times 5\text{ cm} = 35\text{ cm}^2$

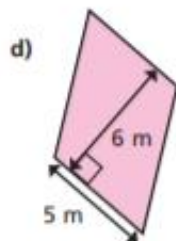
Number	Answer
1.	Base = 7cm
2.	Height = 4cm
3.	Base = 6cm
4.	Height = 7cm
5.	Base = 12cm
6.	Base = 15cm

Spicy

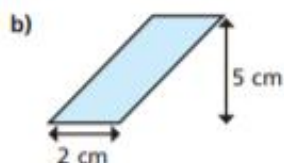
Calculate the areas of the parallelograms.



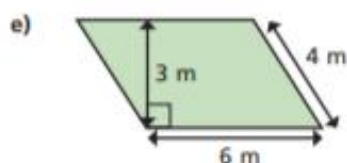
area = cm^2



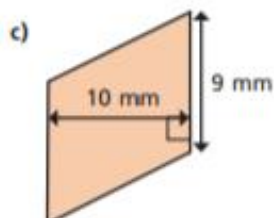
area = m^2



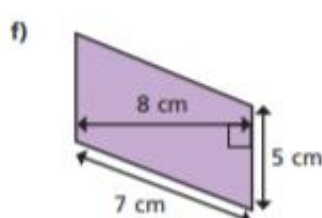
area = cm^2



area = m^2



area = mm^2



area = cm^2

a) **80mm**

b) **7cm**

No. Although Hamish has correctly calculated that the first parallelogram has an area of 42cm^2 , in the second parallelogram he has multiplied the base by a side length, rather than the perpendicular height. The correct area of the second parallelogram is $7\text{cm} \times 5\text{cm} = 35\text{cm}^2$ so both of these parallelograms do not have an area of 42cm^2 .

Thursday

Fluent in 5

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $718.12 + 34.67 = \mathbf{752.79}$ (W)

2. $5.6 + 1.4 = \mathbf{7}$ (M)

3. $54 \times 21 = \mathbf{1,134}$ (W)

4. $983 - 183 = \mathbf{800}$ (M)

5. $5^3 = \mathbf{125}$ (M)

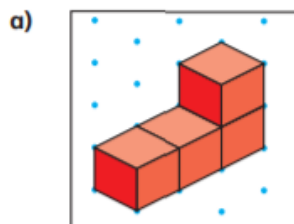
6. $\frac{3}{4}$ of 80 = $\mathbf{60}$ (M)

Calculate, estimate and compare volume of cubes

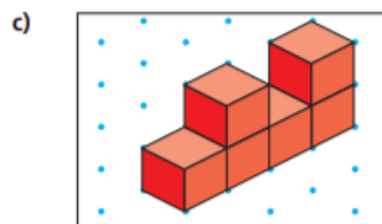
Mild

How many cubes are needed to make each shape?

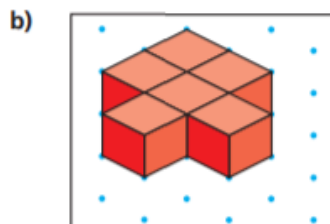
There are no hidden cubes.



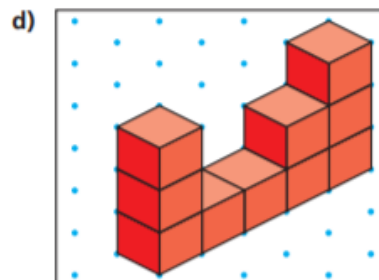
cubes



cubes



cubes



cubes

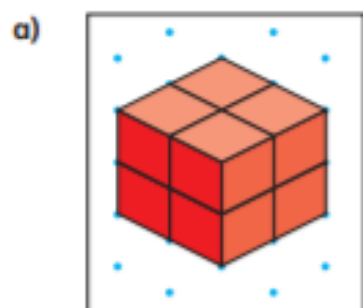
1a. 8cm^3

1b. 12cm^3

2a. False; 6cm^3

2b. False; 11cm^3

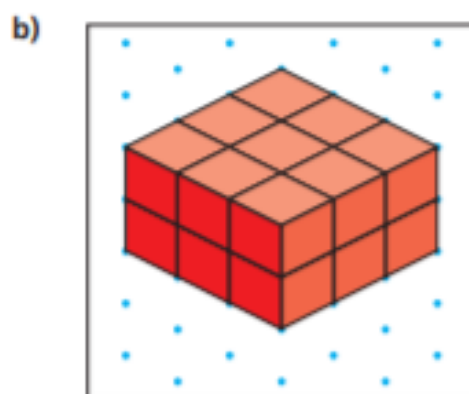
How many cubes are needed to make the following shapes?



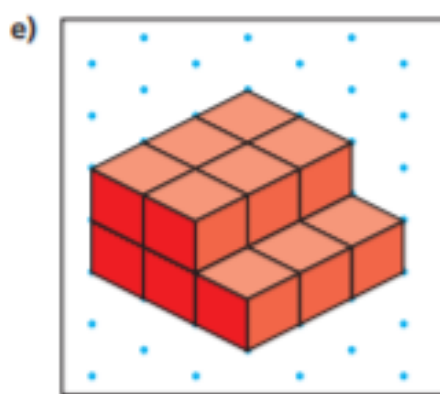
8 cubes



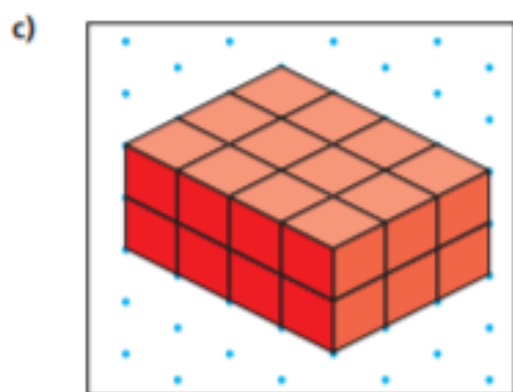
10 cubes



18 cubes

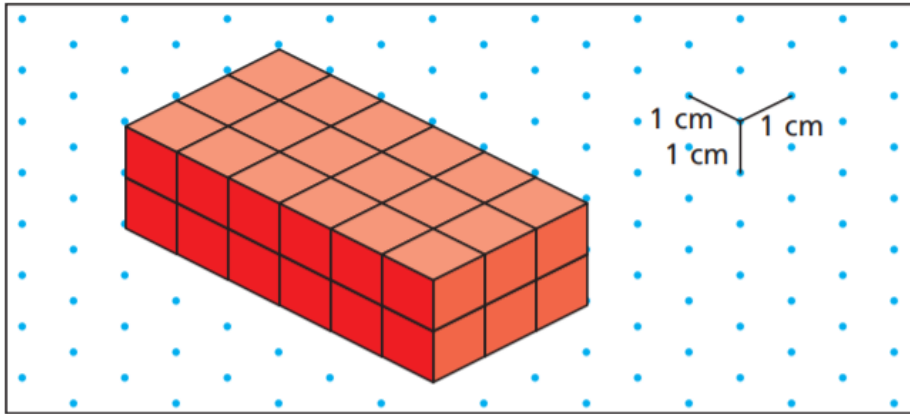


15 cubes



24 cubes

- 1 Here is a cuboid made up of cubes.



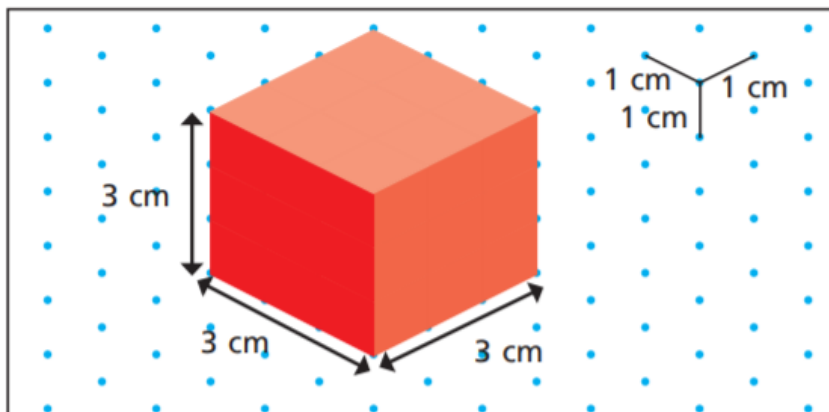
- a) What is the volume of the cuboid?

volume = 36 cm³

- 2 Find the volume of the cuboids.

You can make them with cubes if it helps.

- a)



volume = 27 cm³

C

$$9\text{cm}^3 + 4\text{cm}^3 = 13\text{cm}^3$$

C is the odd one out; it has a volume of 9cm³. A and B both have a volume of 12cm³.

B is the odd one out; it has a volume of 10cm³. A and B both have a volume of 9cm³.

Medium



There are 14 cubes in the cuboid.



Explain Teddy's mistake.

He hasn't included the ones at the back that aren't visible from this angle.

If one cube is worth 1 cm^3 , what are the volumes of the shapes?

a)



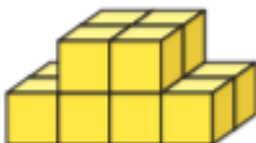
volume = cm^3

b)



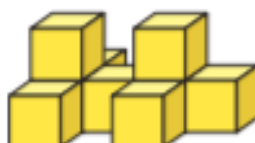
volume = cm^3

c)



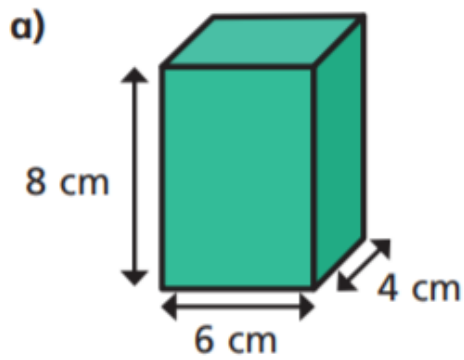
volume = cm^3

d)

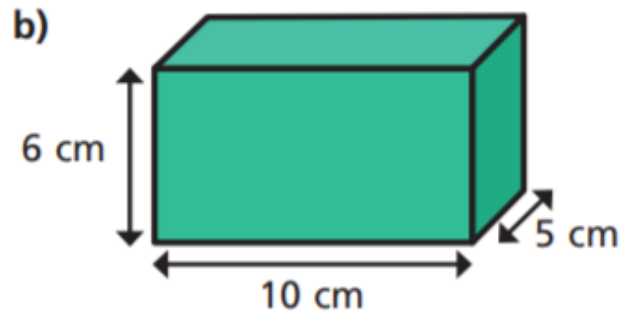


volume = cm^3

Calculate the volumes of the cuboids.

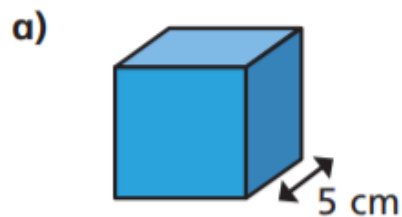


volume = cm^3

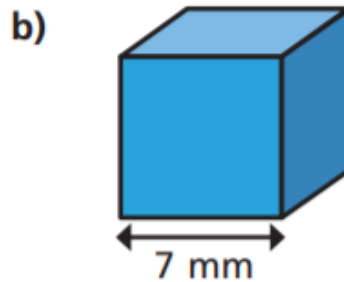


volume = cm^3

Calculate the volumes of the cubes.



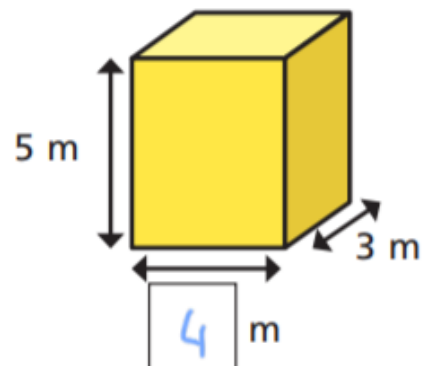
volume = cm^3



volume = mm^3

The volume of the cuboid is 60 m^3

Find the missing length.



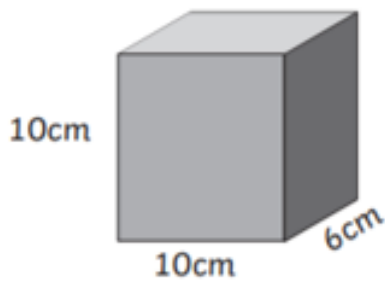
26cm³

False; 18cm³.

A and B.

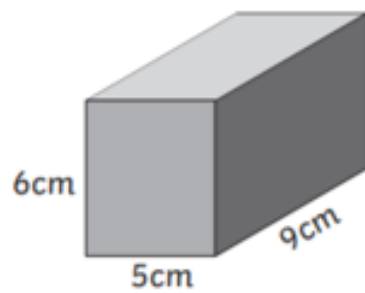
Calculate the volume of the following cuboids.

1.



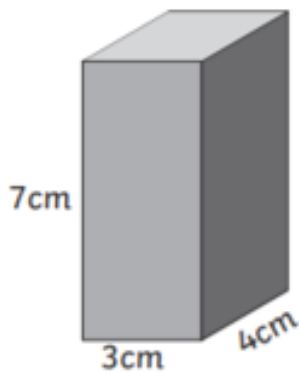
Volume = **600cm^3**

2.



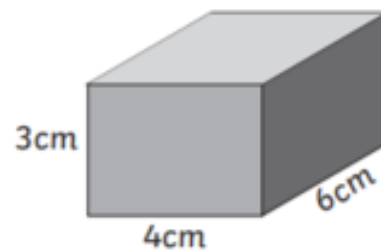
Volume = **270cm^3**

3.



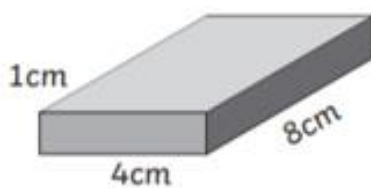
Volume = **84cm^3**

4.



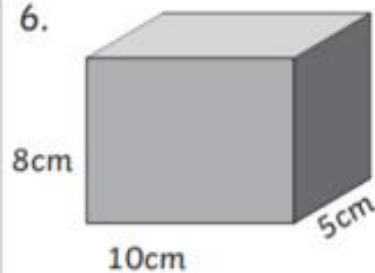
Volume = **72cm^3**

5.



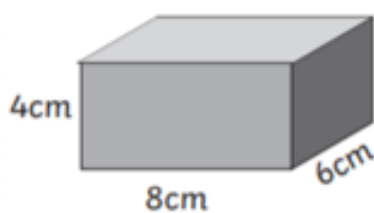
Volume = **32cm^3**

6.



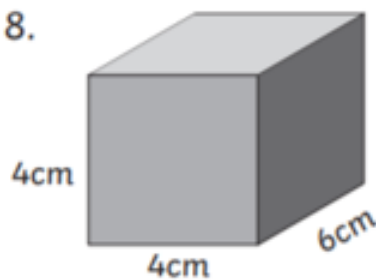
Volume = **400cm^3**

7.



Volume = **192cm^3**

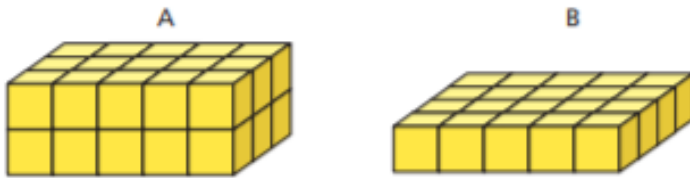
8.



Volume = **96cm^3**

Spicy

Here are two cuboids made of 1 cm^3 cubes.



Which shape has the greater volume? A

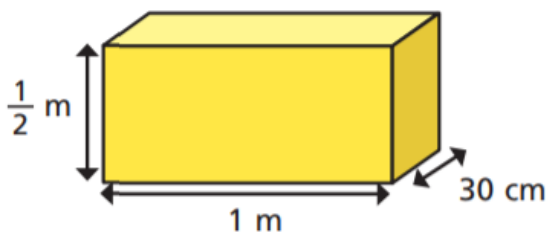
B is the odd one out; it has a volume of 19 cm^3 . A and C both have a volume of 21 cm^3 .

B is the odd one out; it has a volume of 15 cm^3 . A and C both have a volume of 17 cm^3 .

$A = 30\text{ cm}^3$, $B = 28\text{ cm}^3$, $C = 23\text{ cm}^3$.

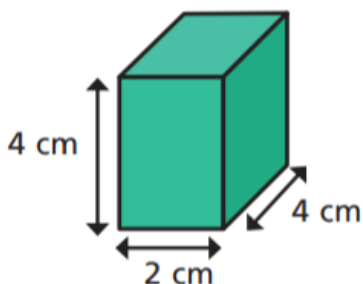
Jon can create the following combinations; $A + C$; $B + C$.

Calculate the volume of the cuboid.

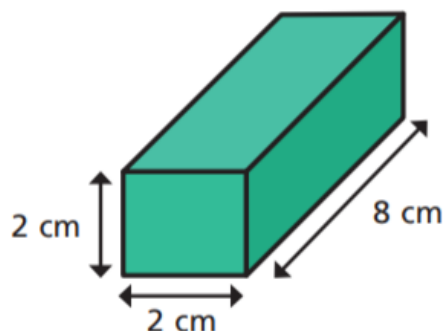


volume = 150,600 cm^3

a) Calculate the volumes of the two cuboids.

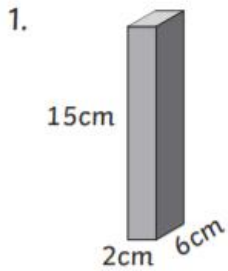


32 cm^3

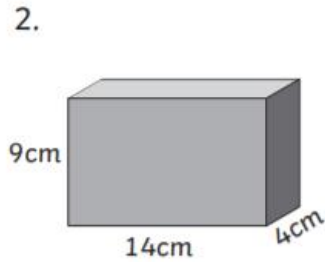


32 cm^3

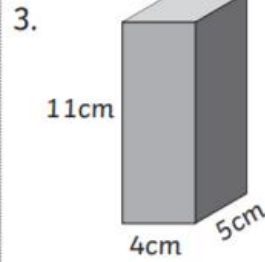
Calculate the volume of the following cuboids.



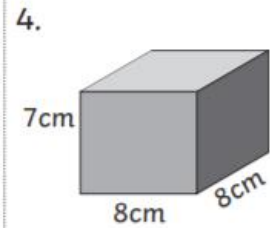
Volume = **180cm³**



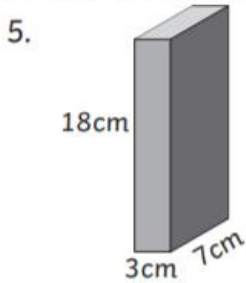
Volume = **504cm³**



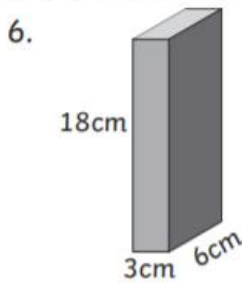
Volume = **220cm³**



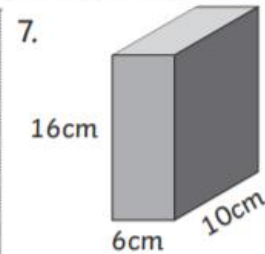
Volume = **448cm³**



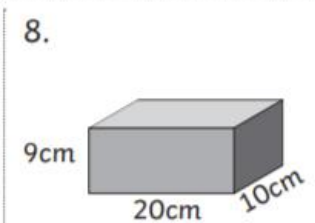
Volume = **378cm³**



Volume = **324cm³**

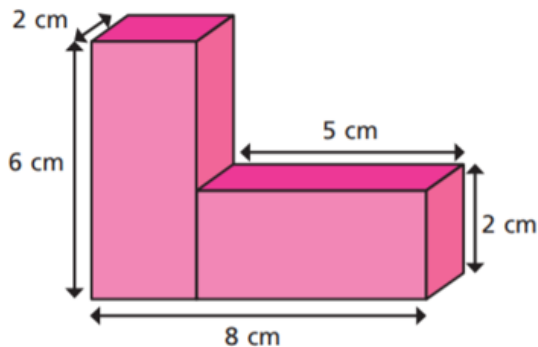


Volume = **960cm³**



Volume = **1800cm³**

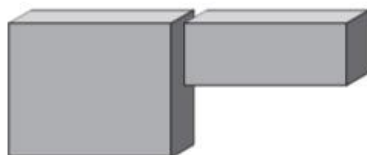
Calculate the total volume of the shape.



volume = **56** cm³

Challenge

A swimming pool is made of 2 cuboid spaces with a total volume of 210m³. What could be the dimensions of the pool?



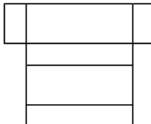
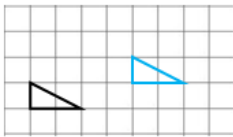
Possible answer: The pool is 5m wide, 14m long. Shallow end is 5m x 7m x 2m deep; deep end is 5m x 7m x 4m deep.

Friday

Challenge of the Week

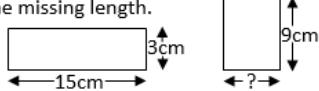
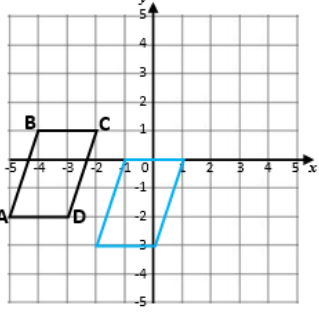
Key Skills

Mild

A: Place Value, Add and Subtract		B: Multiply, Divide and Fractions		C: Measure, Geometry and Statistics													
1. Write $<$ or $>$ to make this correct: 1,001,100 1,010,001	5:1 $<$	11. Circle all the factors of 32. 3 <u>4</u> 12 <u>16</u> 18	5:8 4, 16	21. $\frac{1}{2}$ litre of Diet Cola costs 95p. Sue needs 2 litres of Diet Cola. How much does this cost her?	5:23 £3.80												
2. Write 671,109 in words.	5:1 Six hundred and seventy one thousand, one hundred and nine	12. What is the only even prime number ?	5:9 2	22. What shape is this a net of?	5:24 Cuboid												
3. Round 596,147 to the nearest ten .	5:2 596,150	13. $2,093 \times 5$	5:10 10,465														
4. What is the missing number? 9,980 9,990 10,010	5:2 10,000	14. $75.3 \div 1000$	5:11 0.0753														
5. The temperature was -11°C then increased by 9°C . What is it now?	5:3 -2°C	15. Circle all of the square numbers . 38 <u>49</u> 56 <u>81</u> 90	5:12 49, 81	23. Translate the shape:	5:28 Shape drawn												
6. What number is represented by these Roman Numerals? MLXIX	5:4 1069	16. $\frac{1}{2} - \frac{3}{18} =$	5:13 $\frac{6}{18}$	4 units right and 1 units up.													
7. $390,340 + 5,475 =$	5:5 395,815	17. Find an equivalent fraction of $\frac{3}{9}$.	5:14 $\frac{1}{3}$	24. Look at this bus timetable:													
8. $94,374 - 29,194 =$	5:5 65,180	18. Write $\frac{23}{2}$ as a mixed number .	5:15 $11\frac{1}{2}$	<table border="1"><tr><td>Oldtown</td><td>10:07</td><td>10:47</td><td>11:25</td></tr><tr><td>Swanby</td><td>10:23</td><td>11:03</td><td>11:43</td></tr><tr><td>Newfield</td><td>10:49</td><td>11:29</td><td>12:09</td></tr></table>		Oldtown	10:07	10:47	11:25	Swanby	10:23	11:03	11:43	Newfield	10:49	11:29	12:09
Oldtown	10:07	10:47	11:25														
Swanby	10:23	11:03	11:43														
Newfield	10:49	11:29	12:09														
9. Complete this sum without written working. $13,750 - 6,250 =$	5:6 7,500	19. $1\frac{3}{8} \times 5 =$	5:16 $6\frac{7}{8}$	What time does the 10:23 bus from Swanby get to Newfield?													
10. DVDs are £12.89 each. If I buy 2, how much change do I get from £30?	5:7 £4.22	20. Round 12.56 to 1 decimal place.	5:17 12.6	25. I want to be in Newfield by 12:00. What is the latest bus that I can get from Oldtown?													
Total (A)		Total (B)		Total (C)													
Test Total (A+B+C)		R (0-9)	Y (10-19)	G (20-25)													

Key Skills

Medium and Spicy

A: Place Value, Add, Subtract, Multiply and Divide		B: Fractions, Ratio, Proportion and Algebra		C: Measure, Position and Direction	
1. Write in words: 4,702,106	6:1 Four million, seven hundred and two thousand, one hundred and six	11. Simplify this fraction fully: $\frac{50}{75}$	6:7 $\frac{2}{3}$	21. 730g of pasta is added to 1.4kg. How much pasta is there now?	6:18/19 2,130g or 2.13kg
2. What is the value of the 2 in this number? 5,273,914	6:1 200,000	12. $4\frac{3}{5} - \frac{2}{3} =$	6:8 $3\frac{14}{15}$	22. How many days are there in 3 years?	6:19 1,095
3. Round 8.427 to the nearest whole number.	6:1 8	13. $\frac{1}{8} \div 6 =$	6:9 $\frac{1}{48}$	23. These have the same area. Find the missing length.	6:20 5cm
4. The temperature drops from 8°C to -9°C. What is the difference?	6:2 17°	14. What is the value of the 3 in this number: 58.473	6:10 $\frac{3}{1000}$		
5. $3,746 \times 52$	6:3 194,792	15. Give your answer as a decimal: $49 \div 5$	6:11 9.8	24. What are the co-ordinates of A ?	6:27 (-5, -2)
6. $912 \div 24$	6:3 38	16. Write this decimal as a fraction and a percentage. 0.45	6:12 $\frac{9}{20}, 45\%$		
7. Write 3 factors that 36 and 48 have in common .	6:4 1, 2, 3, 4, 6, 12	17. Find 5% of 90.	6:13 4.5		
8. The number 39 has two prime factors . What are they?	6:4 3, 13	18. The ratio of cats to dogs 3:1. If there are 27 cats, how many dogs?	6:14 9		
9. $56 \div (15 + 13)$	6:5 2	19. 9 blocks get added to a tower that is h blocks tall. Write an expression.	6:15 h + 9		
10. How many 65-seater buses does a school need for 265 pupils and staff?	6:6 5	20. Write a possible value for a and b . $(a + b) \times 5 = 45$	6:17 Any 2 that work	25. Translate parallelogram ABCD 3 units right and 1 units down.	6:28 Shape drawn
Total (A)		Total (B)		Total (C)	
Test Total (A+B+C)		R (0-9)		Y (10-19)	G (20-25)