

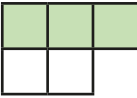
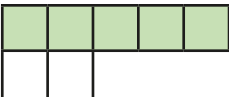


Introducing the ratio symbol

- 1 The ratios show shaded parts to non-shaded parts.
Match the ratios, statements and bar models.

2:3	five to two	
5:2	three to two	
2:5	two to three	
3:2	two to five	

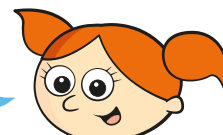
2



The ratio of purple to yellow is 5:4

Mo

It is 4:5



Alex

Who is correct? _____

Explain your answer.

3

- Dani has some counters, cubes and marbles.
Complete the sentences.

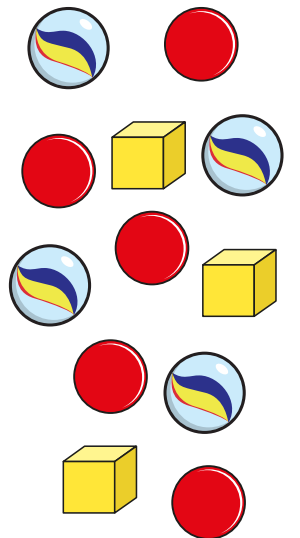
The ratio of counters to marbles is :

The ratio of marbles to cubes is :

The ratio of cubes to counters is :

The ratio of counters to cubes is :

The ratio of counters to cubes to marbles is : :



4

- Brett has drawn some triangles and squares.

The ratio of triangles to squares is 1:3

- a) Are there more triangles or more squares? _____

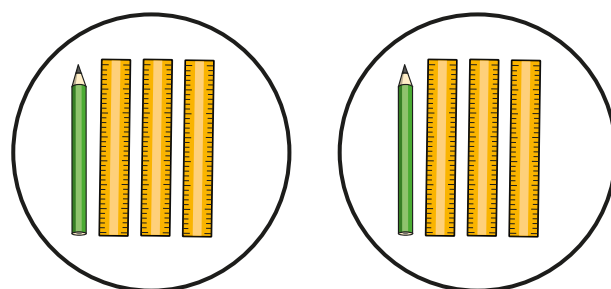
Explain how you know.

- b) Brett has drawn more than 10 shapes.

Draw what Brett might have drawn.



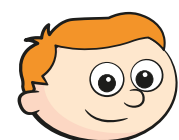
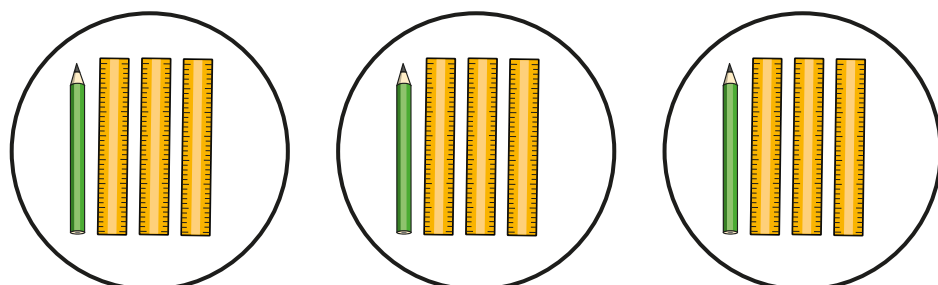
- 5 Here are some rulers and some pencils.



a) What is the ratio of pencils to rulers?

 :

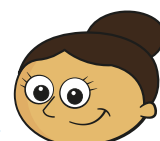
b) Here are some more rulers and pencils.



Ron

The ratio of pencils to rulers is the same as in part a).

Ron is wrong because there are more pencils and more rulers.



Dora

Who is correct? _____

Explain your answer.

- 6 The ratio of horses to chickens in a field is 2:5
Here are the horses. Draw the chickens.



- 7 Shade squares so that the ratio of shaded to non-shaded squares is 1:4

a)

--	--	--	--	--

b)

c)

- 8 A box contains dark, white and milk chocolates.

$\frac{3}{8}$ of the box are dark chocolates.

$\frac{1}{2}$ of the box are milk chocolates.

The rest are white chocolates.

What does each ratio represent?

a) 1:3

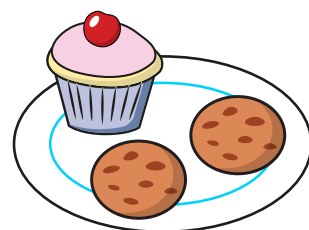
b) 4:1

c) 3:5



Calculating ratio

- 1 Eva is baking cakes and cookies.
For every 1 cake, she will bake 2 cookies.

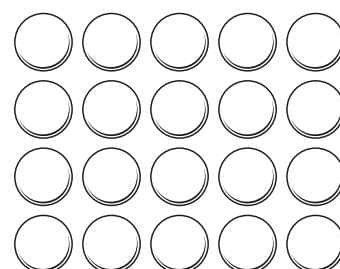


a) If Eva bakes 3 cakes, how many cookies will she bake?

b) If Eva bakes 10 cookies, how many cakes will she bake?



- 2 The ratio of red to yellow counters is 2 : 3
There are 20 counters in total.
How many counters of each colour are there?
You can colour the counters to help you.



yellow red

- 3 Tom has 5 green cubes for every 3 yellow cubes.
He has 16 cubes in total.

Draw a diagram to represent this.

- 4 Esther is building a tower of cubes.
The ratio of red to yellow cubes is 3 : 1
The tower has 6 yellow cubes. How many red cubes are there?

- 5 Nijah plays 21 games of chess.
For every 2 games she wins, she loses 5 games.
How many more games does she lose than win?



- 6 a) Huan is making a drink by mixing 1 part juice with 5 parts water.
Complete the table to show the amounts he would need to use.

Juice	Water
1 litre	5 litres
2 litres	
4 litres	
100 ml	
200 ml	
300 ml	
	30 litres
	750 ml

- b) Huan makes 1 litre 500 ml of drink in total.
How much juice and water does he need to use?

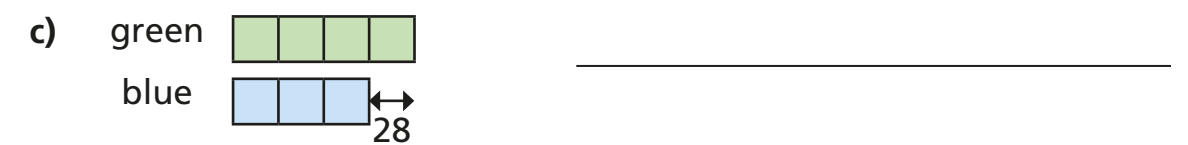
juice

water

- 7 A group of students study French or German in the ratio 3:7
a) Which subject has the most students? _____
b) Draw a diagram to represent this.

- c) There are 80 students in total.
How many more students study German than French?

- 8 Describe a situation for each bar model.

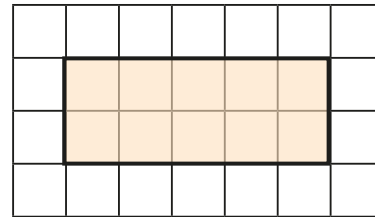


Compare answers with a partner.
What is the same and what is different?

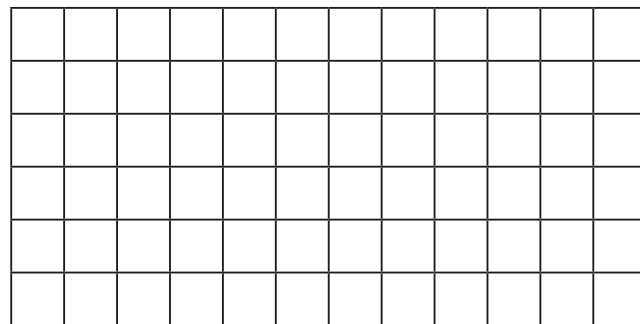


Using scale factors

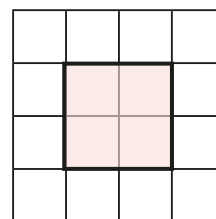
- 1 a) Here is a rectangle.



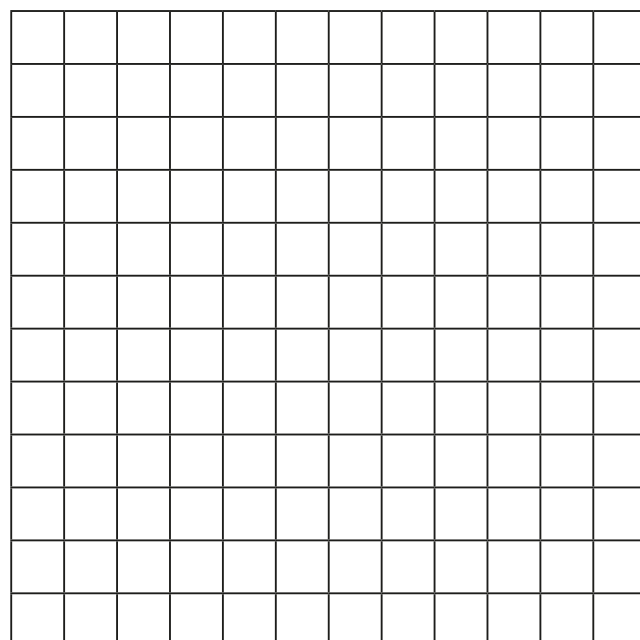
Draw another rectangle where each side is twice as big.



- b) Here is a square.

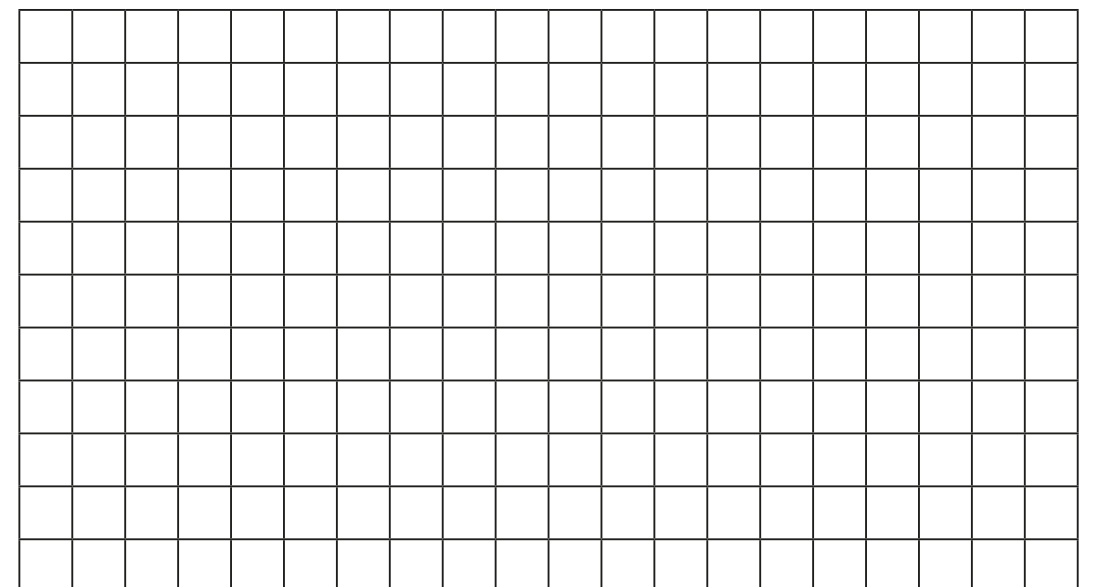
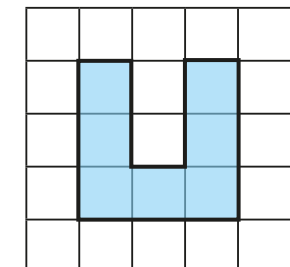
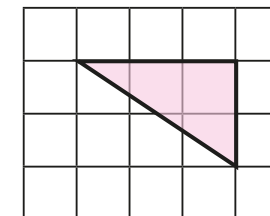


Draw another square where each side is 4 times as big.



- 2 a) Explain what it means for a shape to be enlarged by a scale factor of 2

- b) Enlarge the shapes by a scale factor of 2



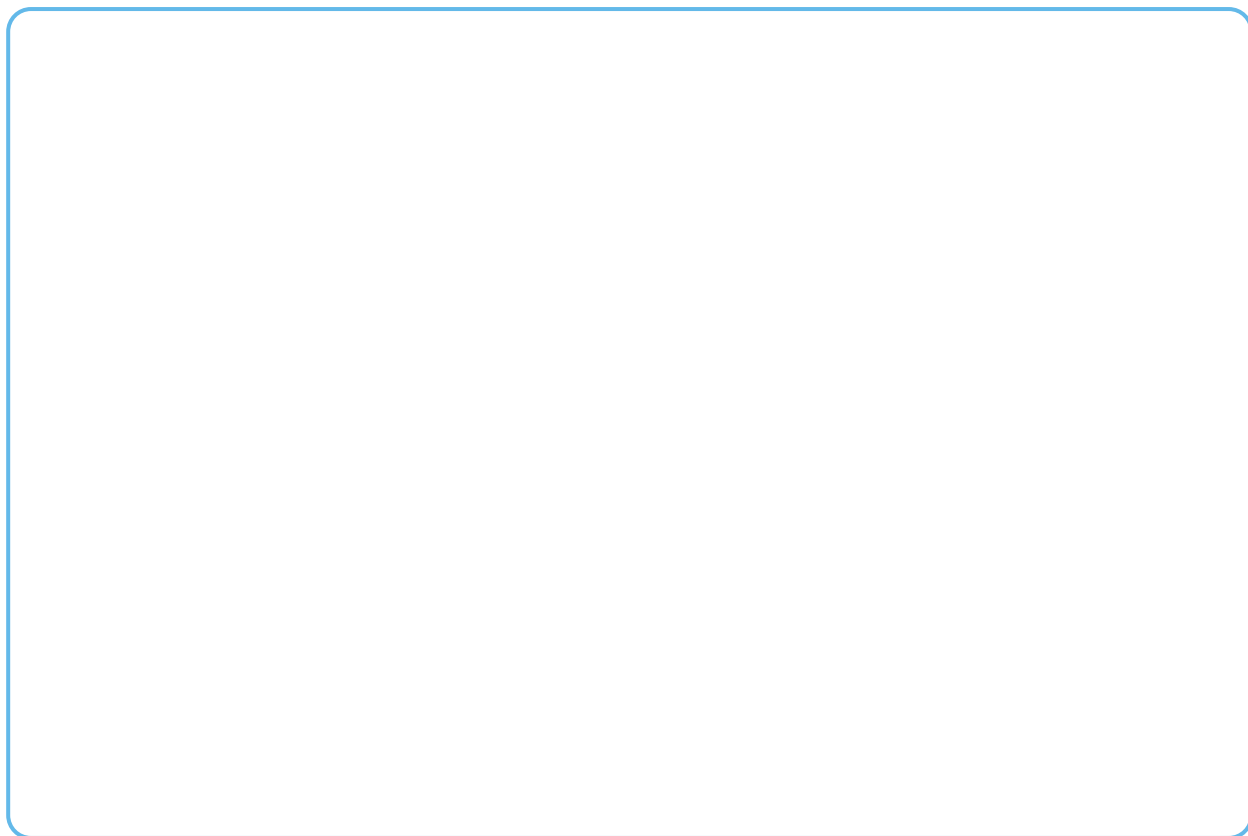
- 3 Complete the sentence.

A shape in which each side has tripled in size has been enlarged by a scale factor of

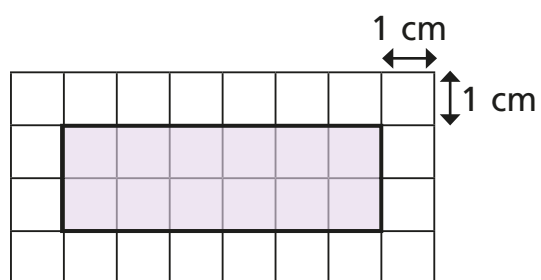
- 4 Here is a rectangle.



- a) Measure the side lengths of the rectangle and label them on the diagram.
b) Enlarge the rectangle by a scale factor of 3 and label the side lengths.

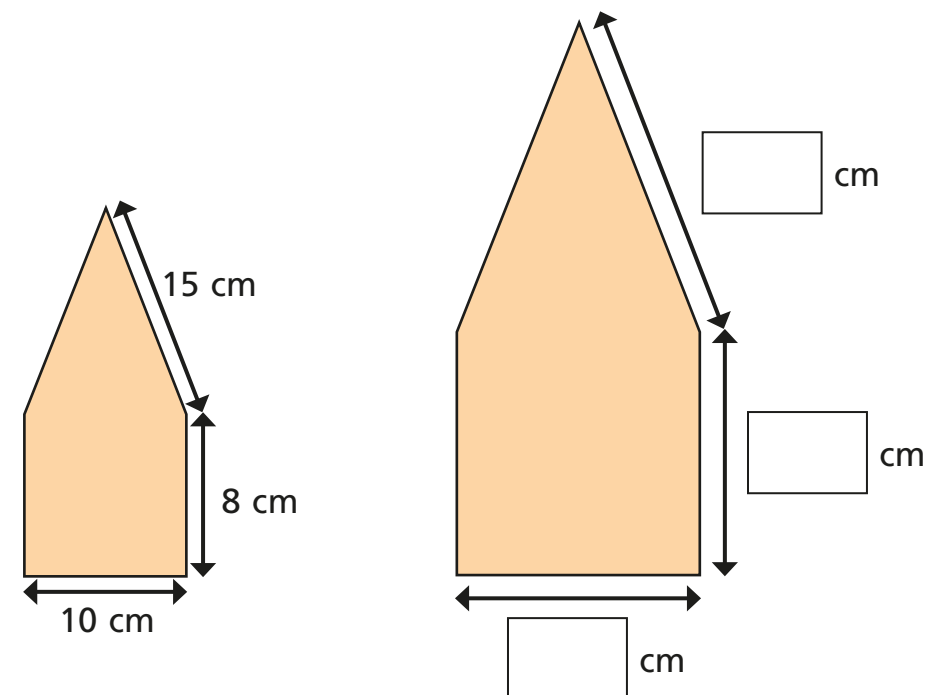


- 5 The sides of the rectangle are increased by a scale factor of 2
What is the perimeter of the new shape?

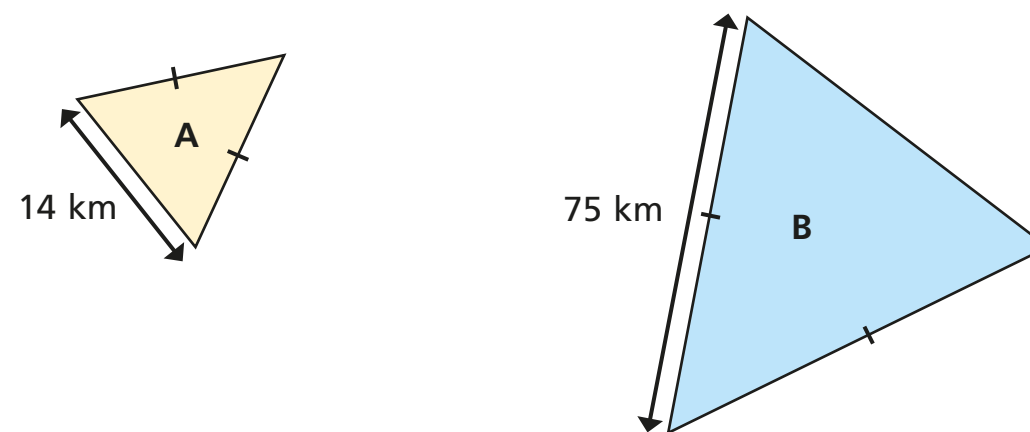


cm

- 6 The shape has been enlarged by a scale factor of $1\frac{1}{2}$
Fill in the dimensions of the new shape.



- 7 Triangle A has been enlarged by a scale factor of 5 to make triangle B.
Find the perimeter of each triangle.



perimeter of A = perimeter of B =



Ratio and proportion problems

1 Whitney buys 6 cans of lemonade for £3

a) How much do 12 cans cost?

b) How much do 3 cans cost?

c) How much do 15 cans cost?



2 The ratio of red to green grapes in a bowl is 3:1

a) Explain what this means.

b) There are 12 more red grapes than green grapes.
What is the total number of grapes in the bowl?

3 Amir is making some chocolate chip biscuits.

He has this list of ingredients to make 6 biscuits.

Chocolate chip biscuits (makes 6)

120 g butter

72 g sugar

180 g plain flour

60 g chocolate chips

a) How much of each ingredient does Amir need to make 2 biscuits?

butter g

plain flour g

sugar g

chocolate chips g

b) How much of each ingredient does Amir need to make 10 biscuits?

butter g

plain flour g

sugar g

chocolate chips g

c) Amir has 240 g of chocolate chips.

What is the maximum number of biscuits he can make?

- 4 Dexter has some 20p and 50p coins in a jar.
For every three 20p coins he has one 50p coin.
There are 12 coins in the jar in total.
How much money is in the jar?

- 5 A drink is made using 3 parts orange juice to 2 parts lemonade.
Esther makes 1.2 litres of this drink.
How much orange juice does she need?

 ml

- 6 Two shops sell the same cereal but in different-sized boxes.

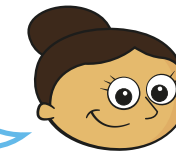
Shop A 500 g of cornflakes £2.10	Shop B 750 g of cornflakes £3.30
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Which shop is better value for money? Shop _____

Explain why.

- 7 Dora draws two similar rectangles.

My larger rectangle is
4 times the size of the
smaller one.



The perimeter of the
larger rectangle is 48 cm.

The length and width of both rectangles are even numbers.
What is the largest possible area for the small rectangle?

 cm²

- 8 Aisha has two boxes of sweets.

- In the first box, the ratio of red sweets to green sweets is 3 : 1
- In the second box, for every 2 orange sweets there are 3 yellow sweets.
- There is the same number of sweets in each box.
- There are 12 yellow sweets in the second box.

How many sweets are in the first box?

Making a 'Mini-Me'

[illegible]