

Diving into Mastery



Area of a Triangle (1)

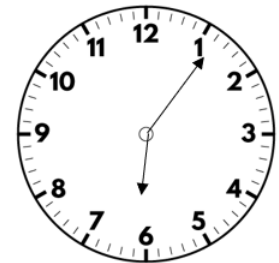
twinkl

Mon 7.3.22

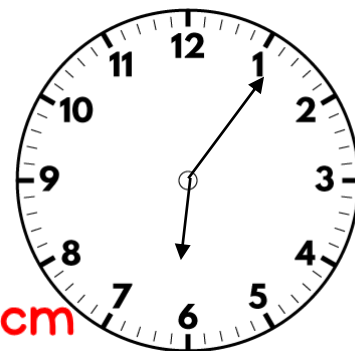
LO: To calculate the area of triangles (Lesson 2)

Flashback 4

Year 6 | Week 8 | Day 2



- 1) If a rectangle has area 16 cm^2 , what could the side lengths of the rectangle be?
- 2) How many cm are there in 3.7 m?
- 3) Solve the equation $47 = y - 5$
- 4) Work out $\frac{7}{8}$ of 64



1) If a rectangle has area 16 cm^2 , what could the side lengths of the rectangle be?

e.g. 8 cm and 2 cm, 16 cm and 1 cm, 4cm and 4cm

2) How many cm are there in 3.7 m? 370

3) Solve the equation $47 = y - 5$ $y = 52$

4) Work out $\frac{7}{8}$ of 64 56

Crucial vocabulary...

Perimeter, Area and Volume

Knowledge Organiser

Key Vocabulary

perimeter

area

volume

cubic units (e.g. cm^3)

cuboid

width

length

rectangle

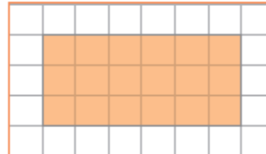
rectilinear

parallelogram

perpendicular height

Area of Rectangles

$\text{length} \times \text{width} = \text{area of a rectangle}$



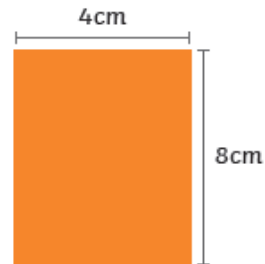
Counting squares:

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

Use formula:

$6\text{cm} \times 3\text{cm}$

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



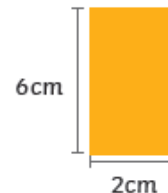
$8\text{cm} \times 4\text{cm} \text{ area} = 32\text{cm}^2$

Perimeter of Rectangles

$\text{perimeter} = \text{length} + \text{width} + \text{length} + \text{width}$
or $(\text{length} + \text{width}) \times 2$



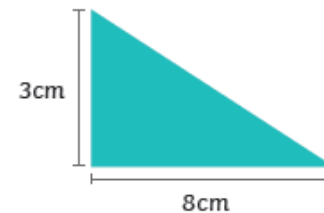
$5\text{cm} + 4\text{cm} + 5\text{cm} + 4\text{cm}$
 $\text{area} = 18\text{cm}^2$



$(6 + 2) \times 2$
 $\text{area} = 16\text{cm}^2$

Area of Triangles

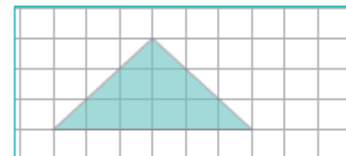
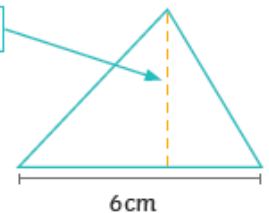
$\text{base} \times \text{perpendicular height} \div 2 = \text{area of a triangle}$



$8\text{cm} \times 3\text{cm} \div 2$
 $\text{area} = 12\text{cm}^2$

perpendicular height = 5cm

$6\text{cm} \times 5\text{cm} \div 2$
 $\text{area} = 15\text{cm}^2$



Counting squares:

6 whole squares = 6cm^2

6 half squares = 3cm^2

$6\text{cm}^2 + 3\text{cm}^2 = 9\text{cm}^2$

$\text{area} = 9\text{cm}^2$

Using formula:

$6\text{cm} \times 3\text{cm}$

$\div 2 = 9\text{cm}^2$

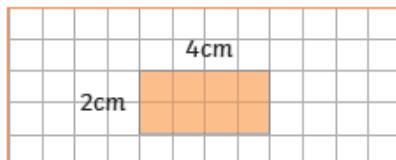
Crucial vocabulary...

Perimeter, Area and Volume

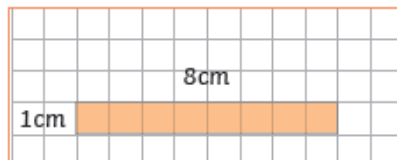
Knowledge Organiser

Perimeter and Area

Shapes with the same area can have different perimeters.

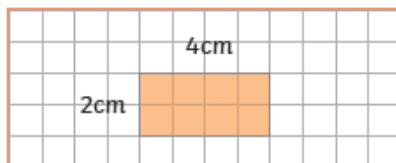


area = 8cm^2 perimeter = 12cm

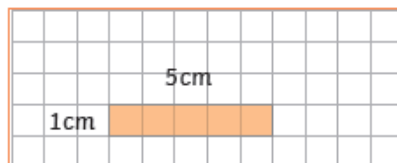


area = 8cm^2 perimeter = 18cm

Shapes with the same perimeter can have different areas.



area = 8cm^2 perimeter = 12cm

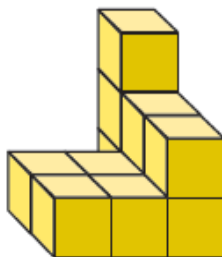


area = 5cm^2 perimeter = 12cm

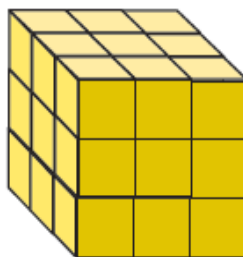
Volume - Counting Cubes



= 1cm^3



11cm^3

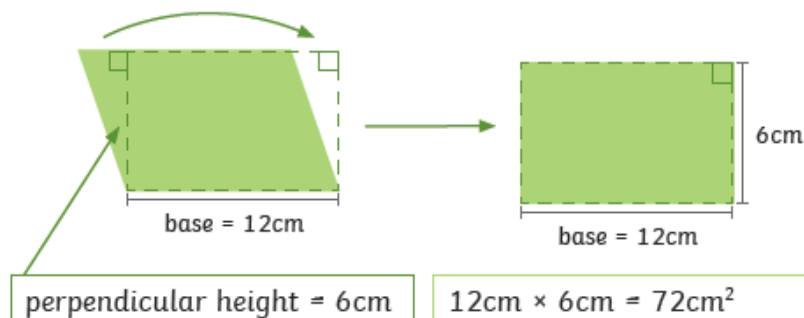


27cm^3

Area of Parallelograms

base $\times$ perpendicular height = area of a parallelogram

A parallelogram can be transformed into a rectangle.

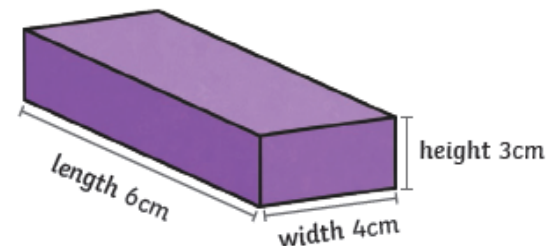


perpendicular height = 6cm

$12\text{cm} \times 6\text{cm} = 72\text{cm}^2$

Volume of Cuboids

length $\times$ width $\times$ height = volume of a cuboid



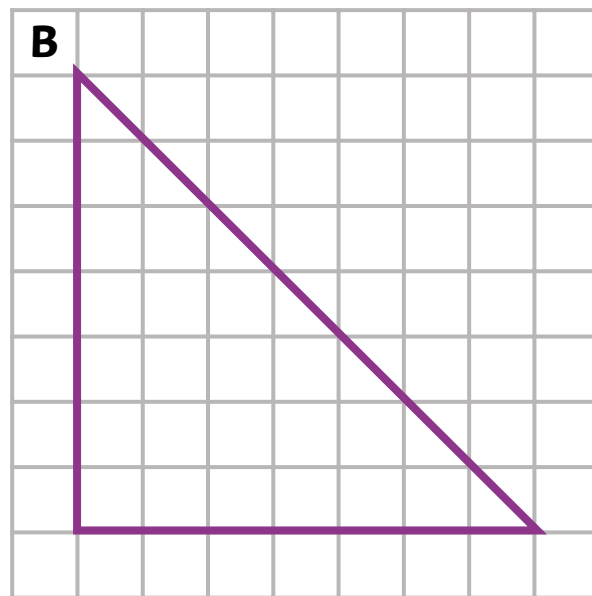
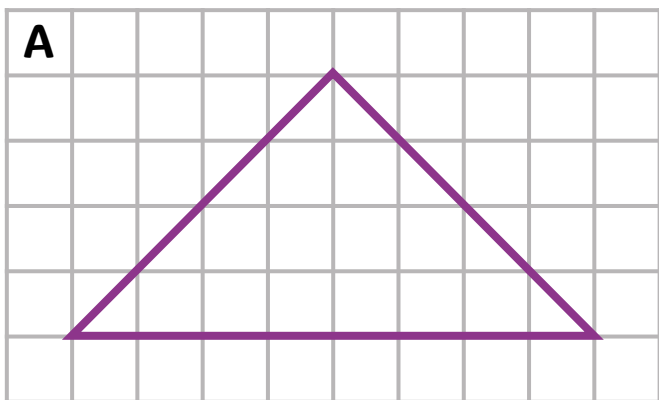
Multiply dimensions in **any** order:

$3\text{cm} \times 6\text{cm} \times 4\text{cm}$

volume = 72cm^3



Which of these triangles has an area that is not a whole number?



Give the area of
the other triangle.

16cm²

Triangle b has an area of 24.5cm²

Each square represents 1cm².



Estimate the area of these triangles.

a)



Your estimate should be between 17cm^2 and 18cm^2 .

b)

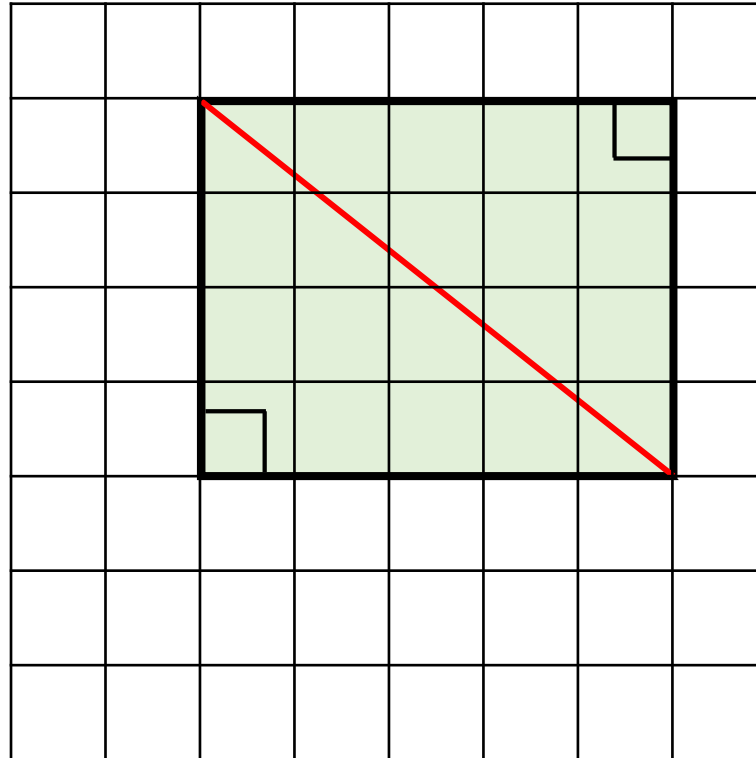


Your estimate should be between 13cm^2 and 14cm^2 .

Each square represents 1cm^2 .

Each square represents 1 cm^2

Have a think



20 cm^2

Area of the triangle

10 cm^2

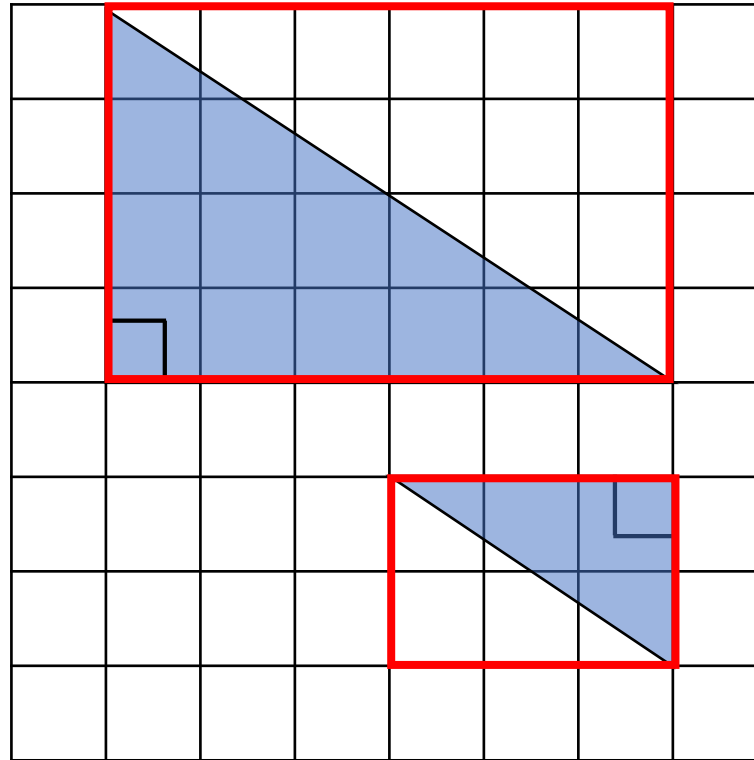
Each square represents 1 cm^2

Have a think



Calculate the areas of the right-angled triangles.

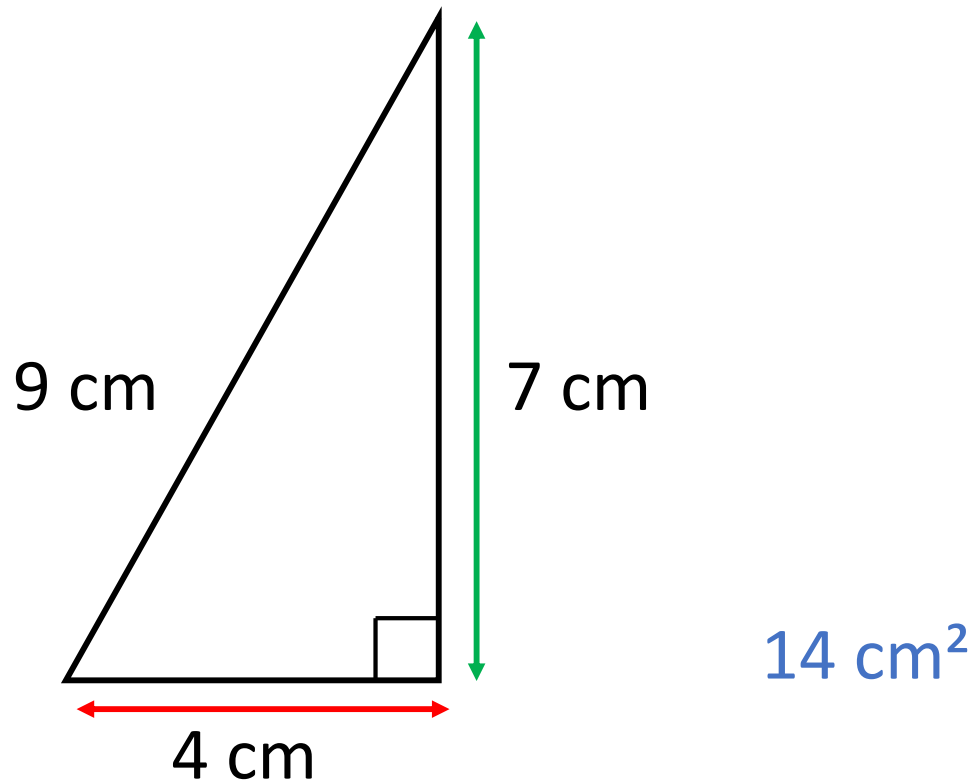
$$6 \times 4$$
$$24 \text{ cm}^2$$



$$12 \text{ cm}^2$$

$$3 \times 2$$
$$6 \text{ cm}^2$$

$$3 \text{ cm}^2$$



$$\text{Area of a triangle} = \frac{\text{Base} \times \text{Perpendicular height}}{2}$$

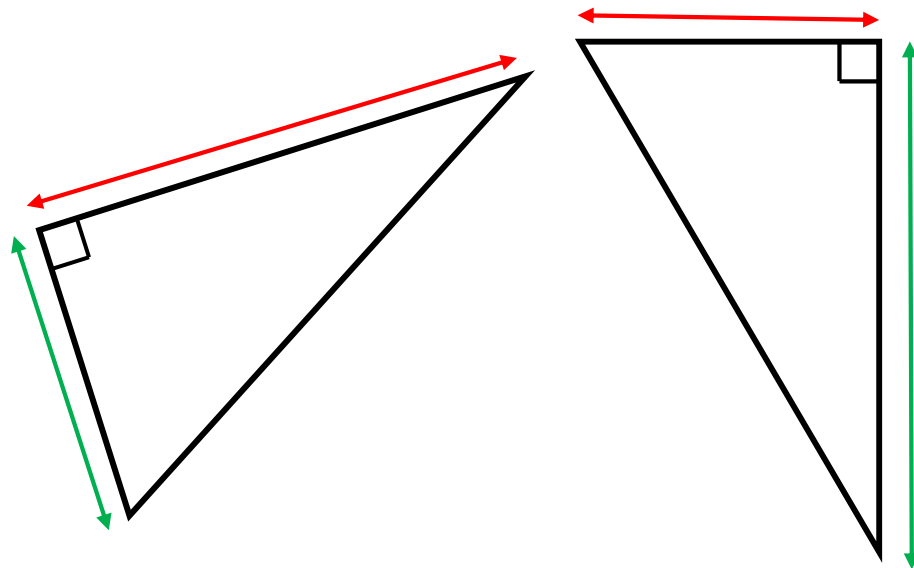
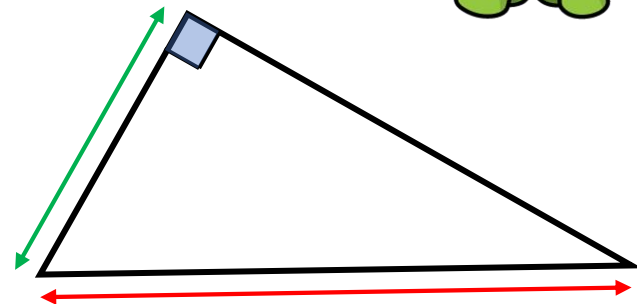
$$\begin{aligned}\text{Area of a triangle} &= \frac{1}{2} \times \text{Base} \times \text{Perpendicular height} \\ &= \frac{1}{2} \times 4 \times 7\end{aligned}$$

The base is along the bottom and the perpendicular height is up the side

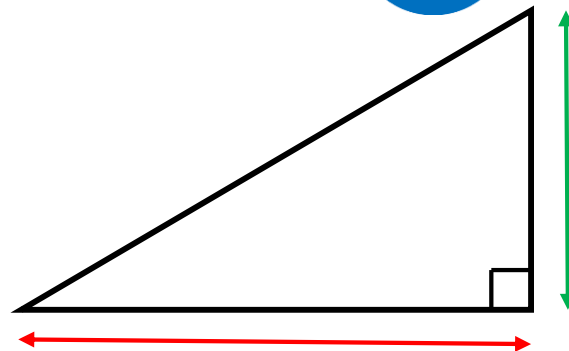


Do you agree with Tiny?

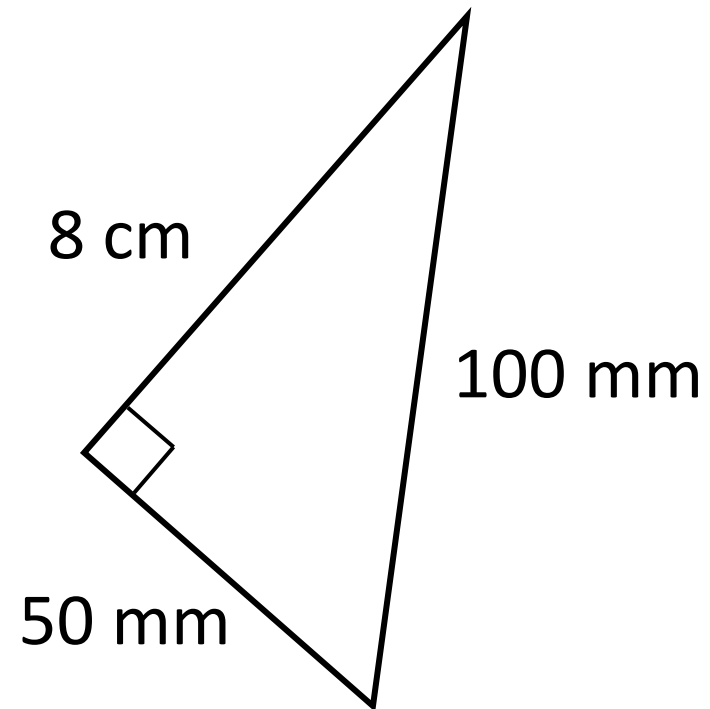
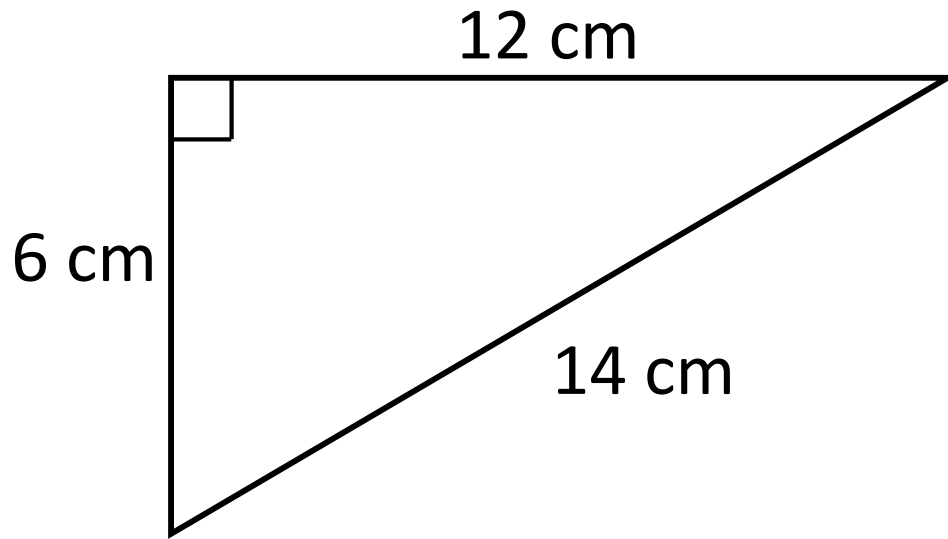
Can you identify the **base** and **perpendicular height**?



Have a think



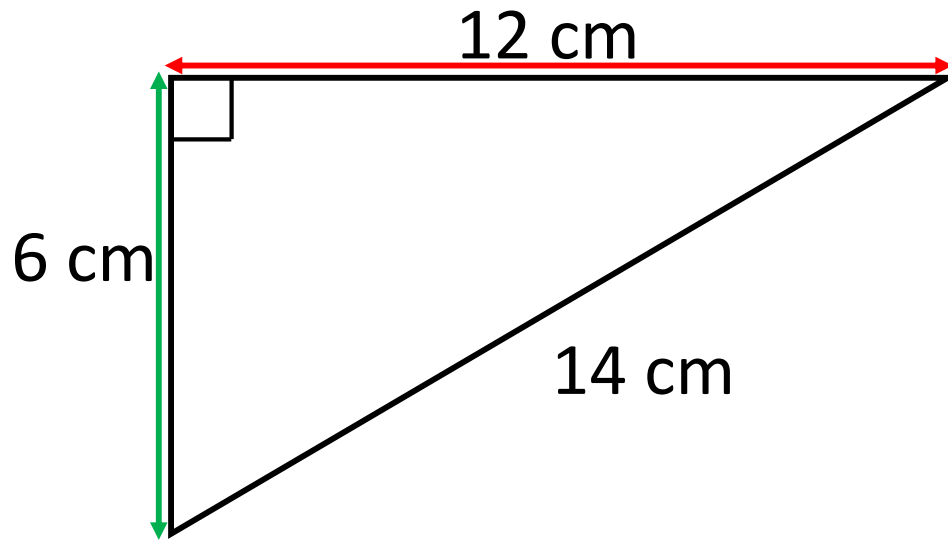
Area of a triangle = $\frac{1}{2} \times \text{Base} \times \text{Perpendicular height}$



Have a think

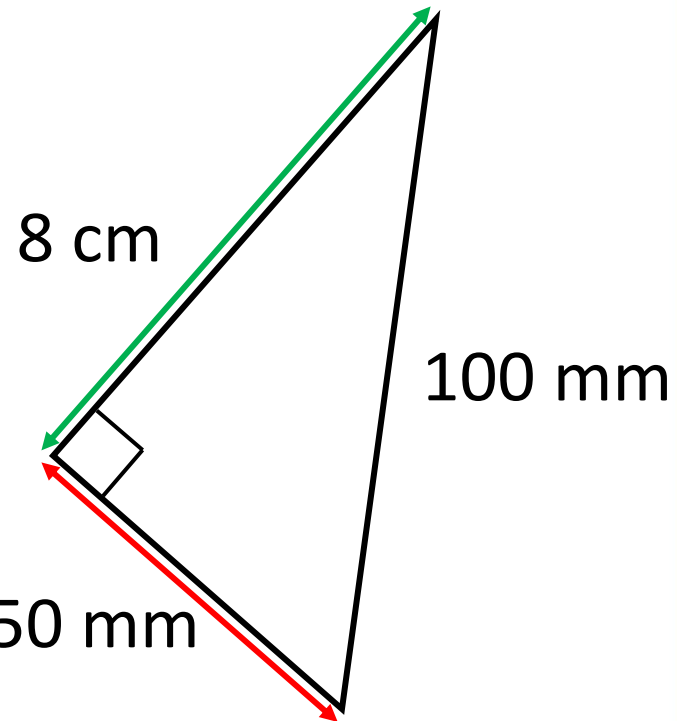


Area of a triangle = $\frac{1}{2} \times \text{Base} \times \text{Perpendicular height}$



$$\frac{1}{2} \times 12 \times 6$$

$$36 \text{ cm}^2$$



$$\frac{1}{2} \times 50 \times 8$$

$$20 \text{ cm}^2$$

$$2,000 \text{ mm}^2$$

<https://vimeo.com/507906973>

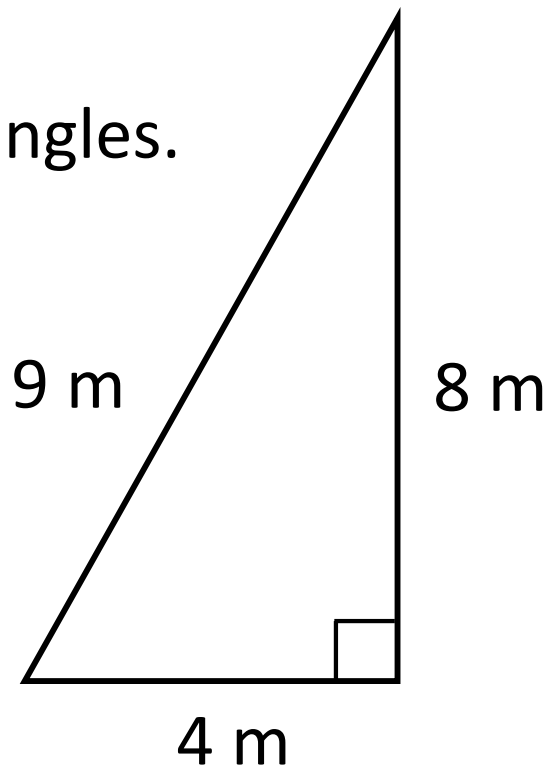
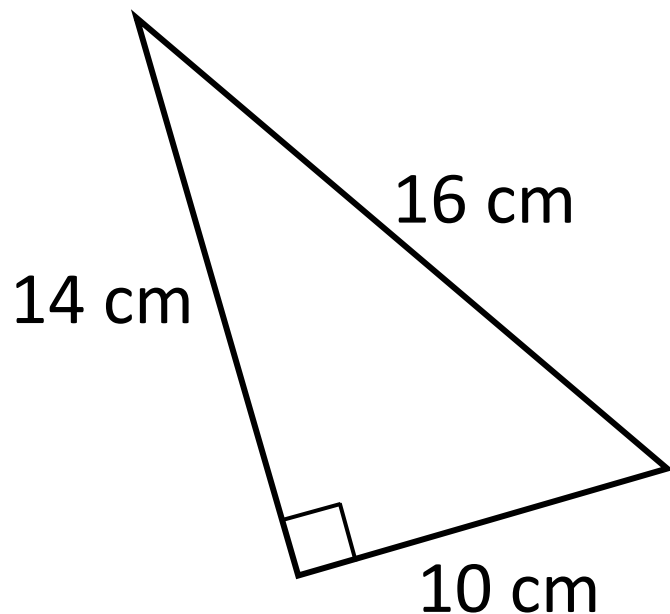


Extra help...

- 1) Complete the formula for calculating the area of a triangle.

$$\frac{1}{2} \times \text{Base} \times \underline{\hspace{2cm}}$$

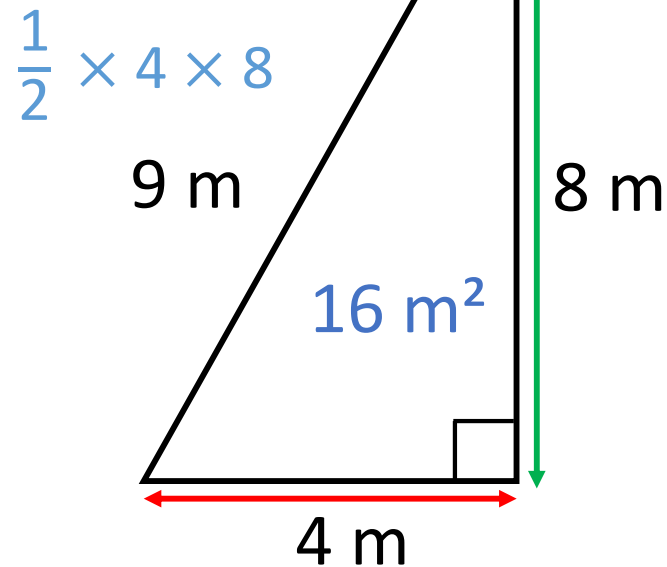
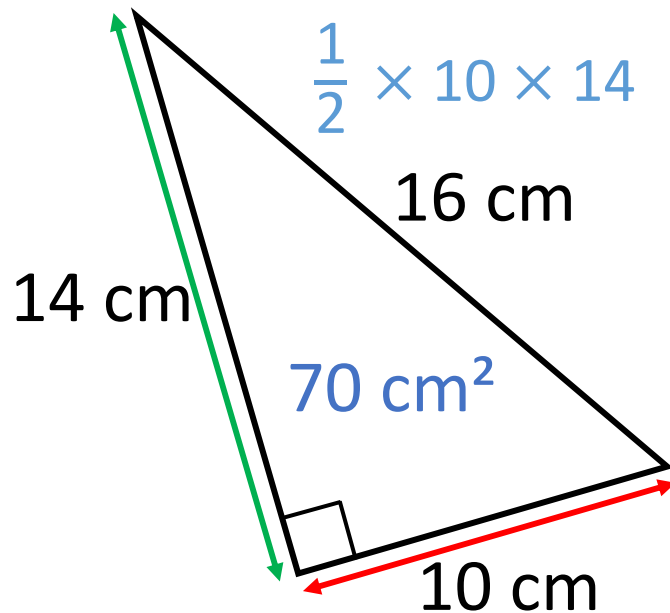
- 2) Work out the area of the triangles.



- 1) Complete the formula for calculating the area of a triangle.

$$\frac{1}{2} \times \text{Base} \times \underline{\text{Perpendicular height}}$$

- 2) Work out the area of the triangles.

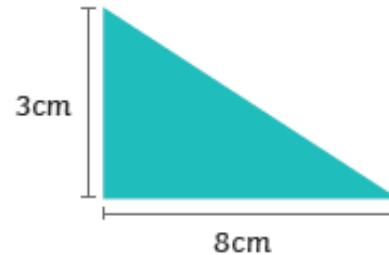


RECAP...
area of triangle



Area of Triangles

base $\times$ perpendicular height $\div 2$ = area of a triangle



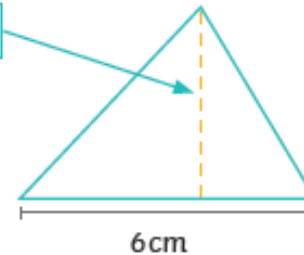
$$8\text{cm} \times 3\text{cm} \div 2$$

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

perpendicular height = 5cm

$$6\text{cm} \times 5\text{cm} \div 2$$

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



**Or count the
squares**



Counting squares:

$$6 \text{ whole squares} = 6\text{cm}^2$$

$$6 \text{ half squares} = 3\text{cm}^2$$

$$6\text{cm}^2 + 3\text{cm}^2 = 9\text{cm}^2$$

$$\text{area} = 9\text{cm}^2$$

Using formula:

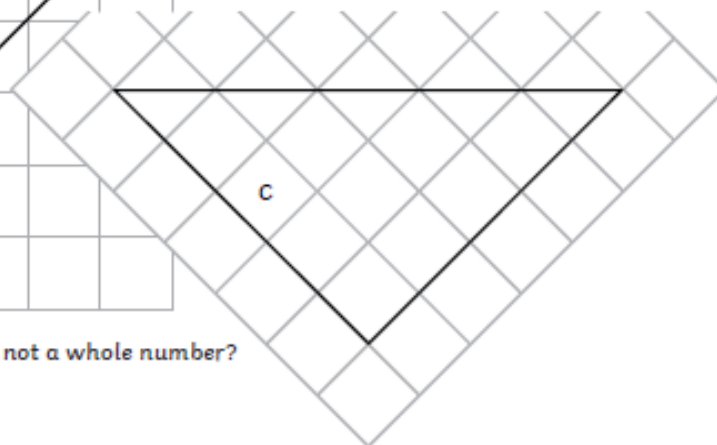
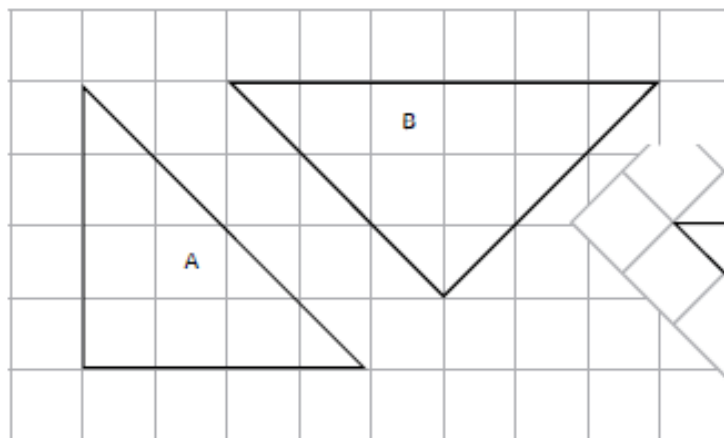
$$6\text{cm} \times 3\text{cm}$$

$$\div 2 = 9\text{cm}^2$$

Triangles Mon



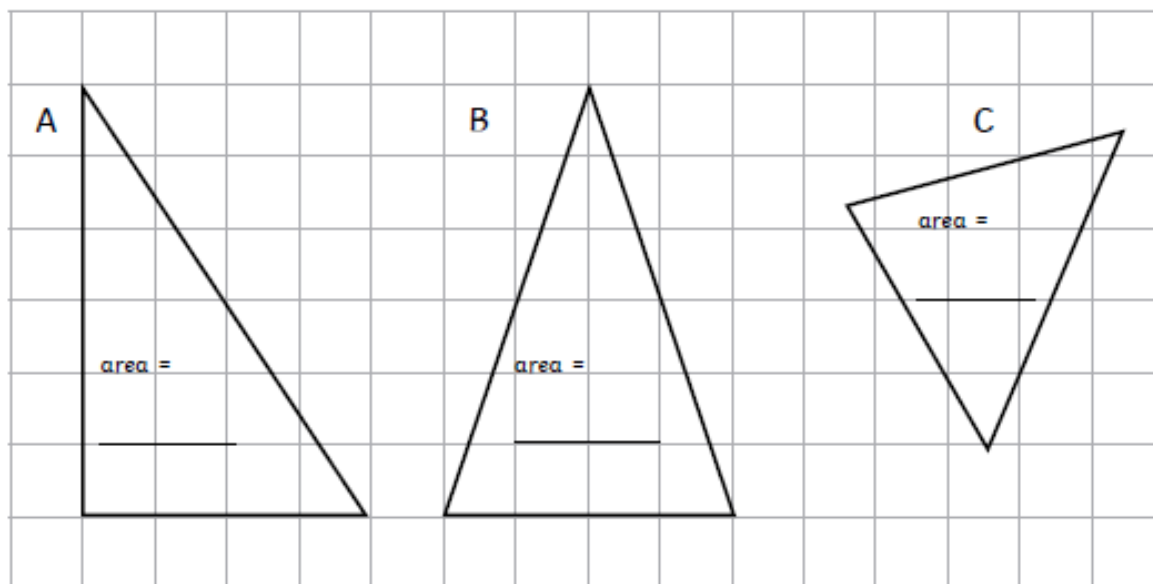
1)



a) Which of these triangles has an area which is not a whole number?

b) Give the area of the other two triangles.

2) Estimate the area of these triangles.

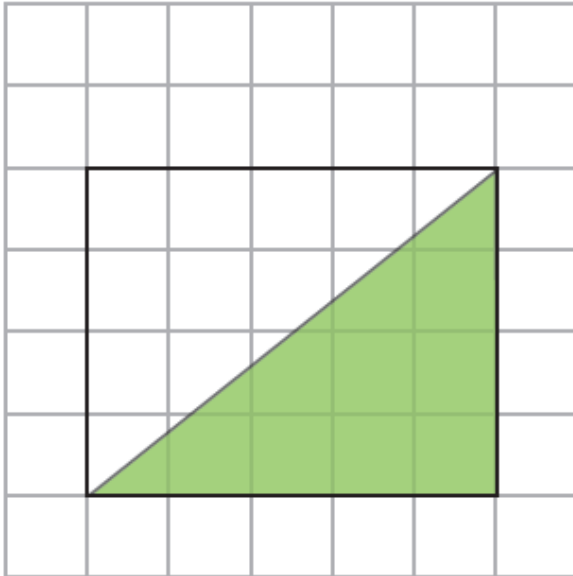


Triangles Mon



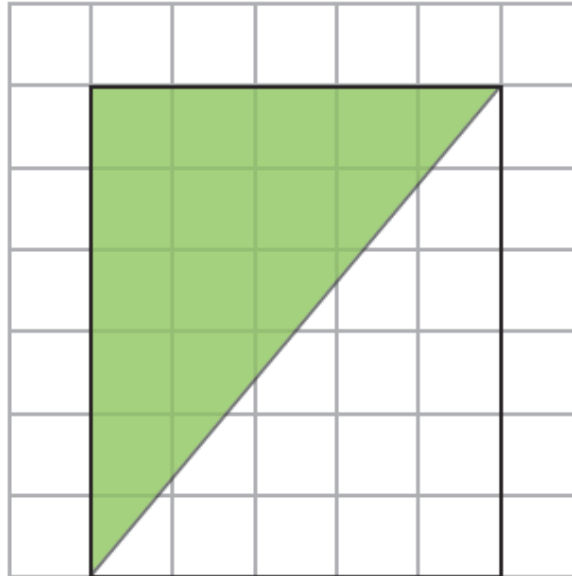
- 1) Each of these rectangles has been split into two right-angled triangles. Firstly, find the area of the whole rectangles.

a)



_____ cm^2

b)



_____ cm^2

- 2) Now estimate the area of the shaded right-angled triangle that is inside each rectangle.

a) _____ cm^2

b) _____ cm^2

What do you notice about the area of the triangle compared to the area of the rectangle?

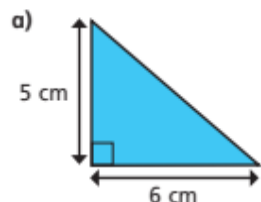
Area of a triangle (3)

- 1 Calculate the area of the triangle.

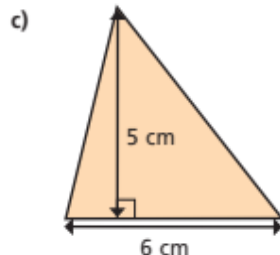


area = cm²

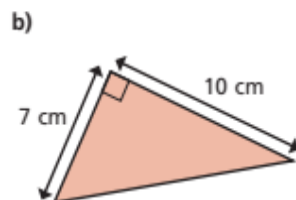
- 2 Calculate the area of the triangles.



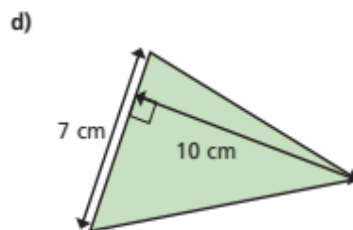
area = cm²



area = cm²

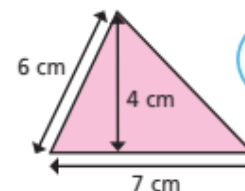


area = cm²



area = cm²

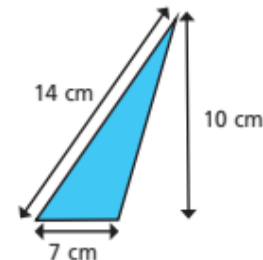
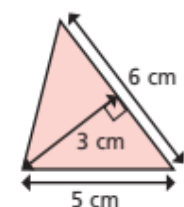
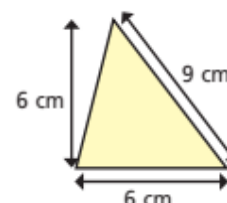
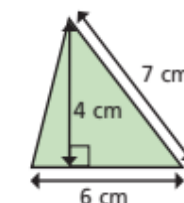
- 3 What mistake has Dora made?



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



- 4 Label the base of each triangle b .



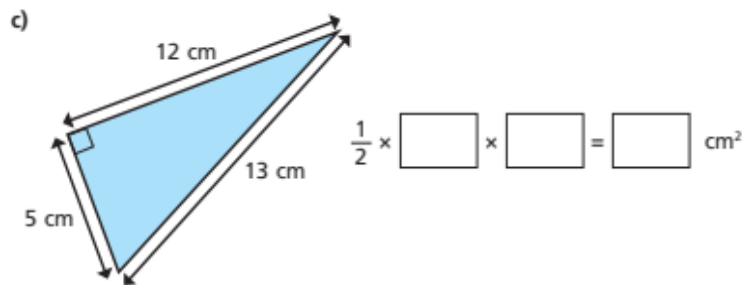
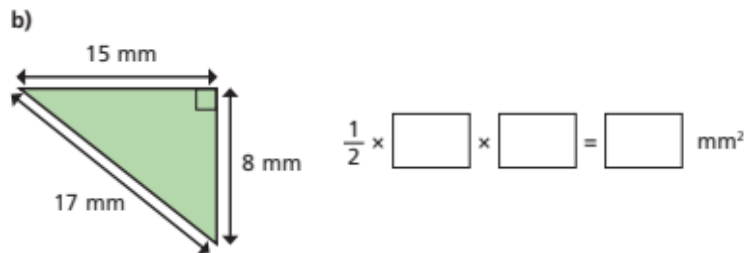
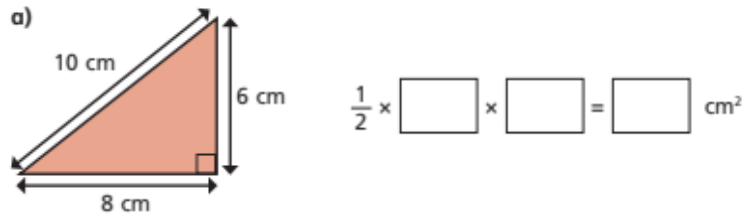
- 5 Are the statements always, sometimes or never true?

The side at the bottom of a triangle is the base.

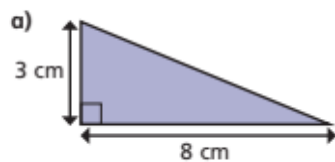
The perpendicular height is equal to the vertical height.

Sq- Mrs Lund
/ Hex Mon

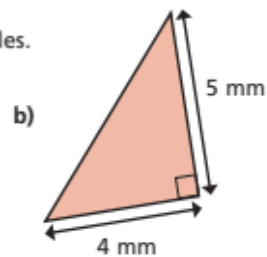
- 5 Insert the correct numbers into the formula to calculate the area of the triangle.



- 6 Calculate the areas of the triangles.

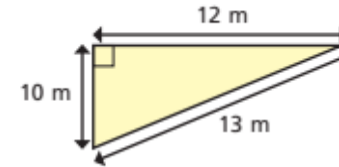


area = $\boxed{}$ cm^2



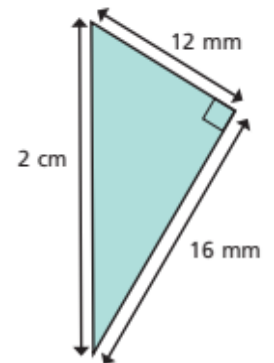
area = $\boxed{}$ mm^2

c)



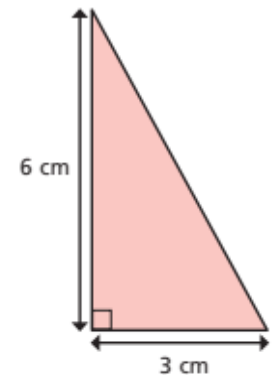
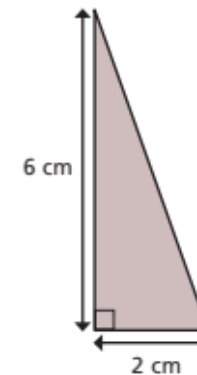
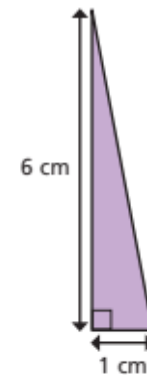
area = $\boxed{}$ m^2

d)



area = $\boxed{}$ mm^2

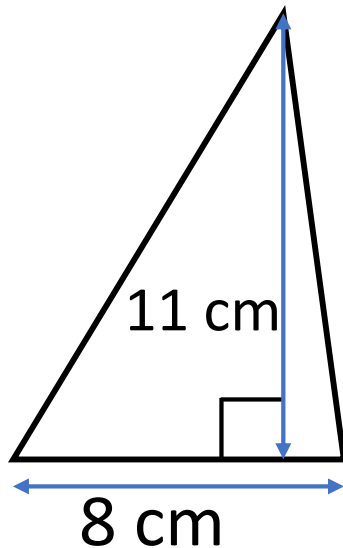
- 7 The width of the right-angled triangles is increasing by 1 cm.



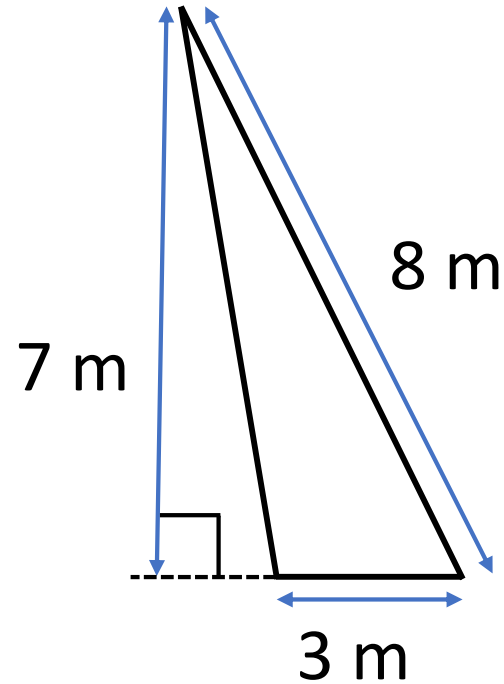
Investigate the pattern for the areas.

What happens to the pattern if the length **and** width increase?

Work out the area of the triangles.



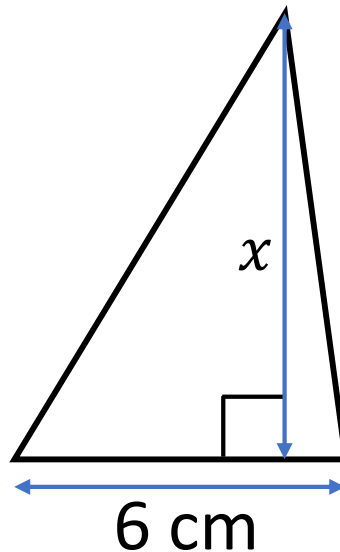
$$\frac{1}{2} \times 8 \times 11 = 44 \text{ cm}^2$$



$$\frac{1}{2} \times 3 \times 7 = 10.5 \text{ m}^2$$

Extension

The area of the triangle is 33 cm^2
What is the length of x ?



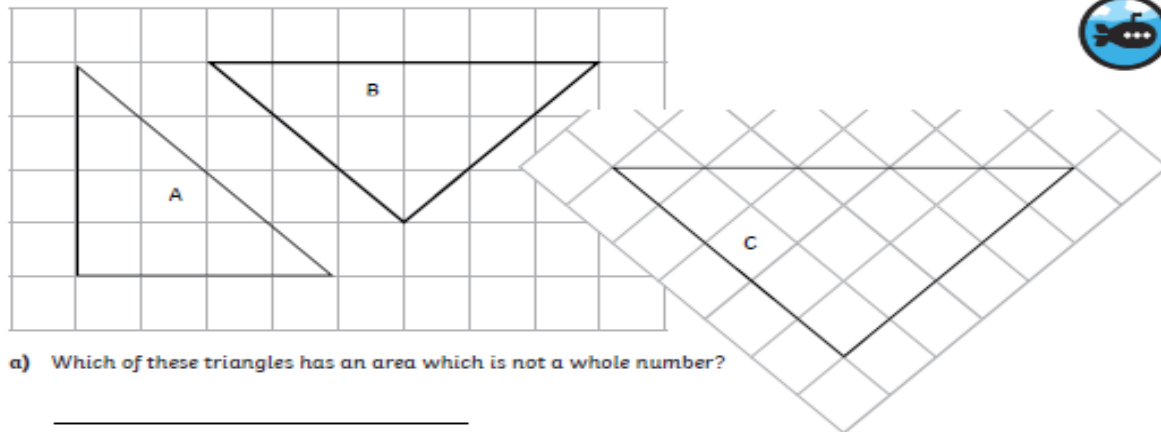
$$\frac{1}{2} \times 6 \times x = 33$$

$$3 \times x = 33$$

$$x = 11 \text{ cm}$$

Squares

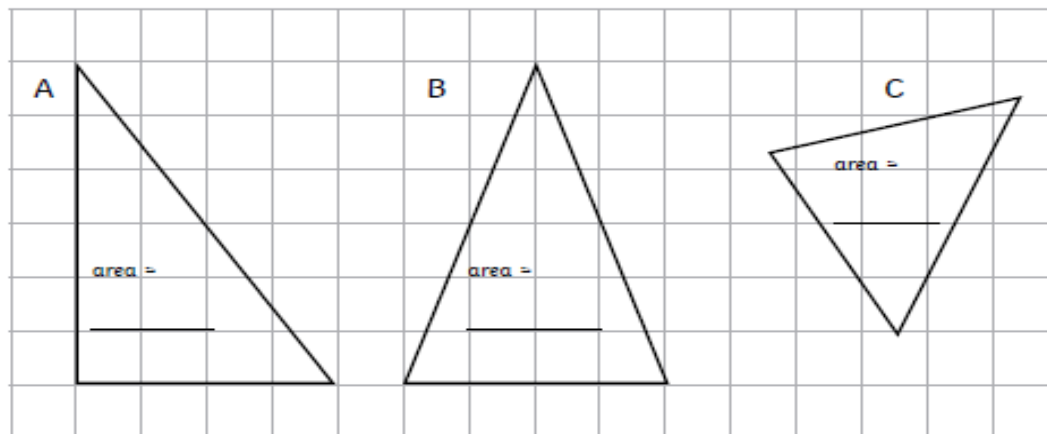
1)



a) Which of these triangles has an area which is not a whole number?

b) Give the area of the other two triangles.

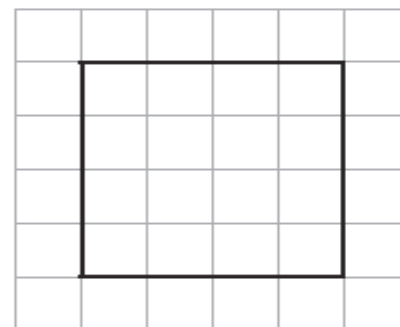
2) Estimate the area of these triangles.



3) a) Draw a single diagonal line so that this square is split into two triangles of the same size.

b) Give the area of each triangle.

c) Compare the area of each triangle to the area of the whole square. What do you notice?





<https://www.bbc.co.uk/bitesize/topics/zjbg87h/articles/zsqxfcw>

Complete the quick quiz on the
BBC Bitesize page

Daily Maths Meeting



Key skills

Diving into Mastery



Ratio and Proportion Problems

twinkl

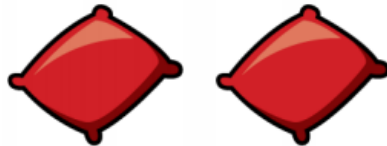
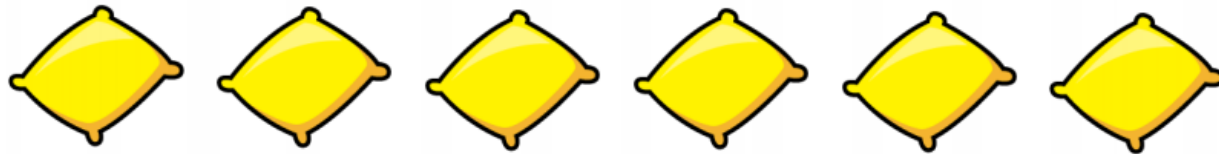
8.3.22 Tues

LO: To use the language of ratio

True or False?

Use ratio language

For every 2 red cushions there are 6 yellow.



If there were 10 red cushions
there would be 60 yellow.



False

For every 2 red cushions there are 6 yellow so if there were 10 red cushions there would be 30 yellow ones.

Useful websites....

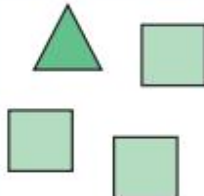
<https://vimeo.com/516637261>



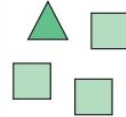
<https://www.bbc.co.uk/bitesize/topics/zsq7hyc/articles/z8kfmbk>

<https://www.bbc.co.uk/bitesize/topics/zsq7hyc/articles/z2nr4wx> --practise questions

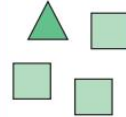
Crucial Vocabulary

Ratio		Knowledge Organiser
Key Vocabulary	Ratio Language	The Ratio Symbol
ratio	For every 1 circle, there are 2 triangles.	 The ratio of footballs to rugby balls: 1:4 The ratio of rugby balls to footballs: 4:1
proportion		
"for every... there are..."	For every 2 bananas, there are 3 apples.	
part		
whole	For every 1 football, there are 3 rugby balls.	 The ratio of circles to triangles: 2:3 The ratio of triangles to circles: 3:2
scale factor		
enlargement	Ratio and Fractions	
similar shapes	 For every 1 rugby ball, there are 2 footballs. Ratio of rugby balls to footballs: 1:2 $\frac{1}{3}$ of the balls are rugby balls.	 The ratio of apples to bananas: 1:2 The ratio of bananas to oranges: 2:3 The ratio of apples to bananas to oranges: 1:2:3 The ratio of oranges to bananas to apples: 3:2:1
length	 For every 1 triangle, there are 3 squares. Ratio of triangles to squares: 1:3 $\frac{1}{4}$ of the shapes are triangles.	
width		
perimeter		

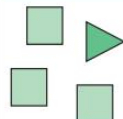
 visit [twinkl.com](https://www.twinkl.com)

Ratio		Knowledge Organiser	
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part	For every 1 football, there are 3 rugby balls.		
whole			
scale factor			
enlargement	Ratio and Fractions		
similar shapes		For every 1 rugby ball, there are 2 footballs.	
length		Ratio of rugby balls to footballs: 1:2	
width		$\frac{1}{3}$ of the balls are rugby balls.	
perimeter		For every 1 triangle, there are 3 squares.	
		Ratio of triangles to squares: 1:3	
		$\frac{1}{4}$ of the shapes are triangles.	

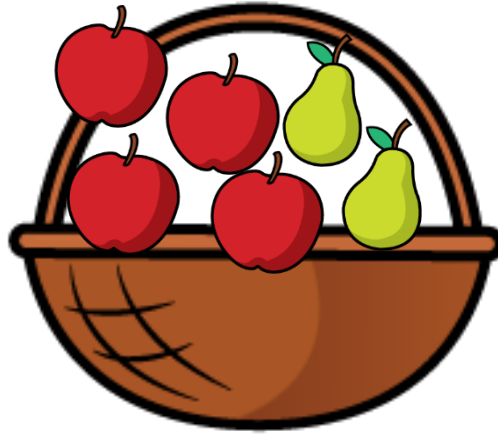
	
The ratio of footballs to rugby balls: 1:4	
The ratio of rugby balls to footballs: 4:1	
	
The ratio of circles to triangles: 2:3	
The ratio of triangles to circles: 3:2	

Ratio		Knowledge Organiser	
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part	For every 1 football, there are 3 rugby balls.		
whole			
scale factor			
enlargement	Ratio and Fractions		
similar shapes		For every 1 rugby ball, there are 2 footballs.	
length		Ratio of rugby balls to footballs: 1:2	
width		$\frac{1}{3}$ of the balls are rugby balls.	
perimeter		For every 1 triangle, there are 3 squares.	
		Ratio of triangles to squares: 1:3	
		$\frac{1}{4}$ of the shapes are triangles.	

	
The ratio of footballs to rugby balls: 1:4	
The ratio of rugby balls to footballs: 4:1	
	
The ratio of circles to triangles: 2:3	
The ratio of triangles to circles: 3:2	

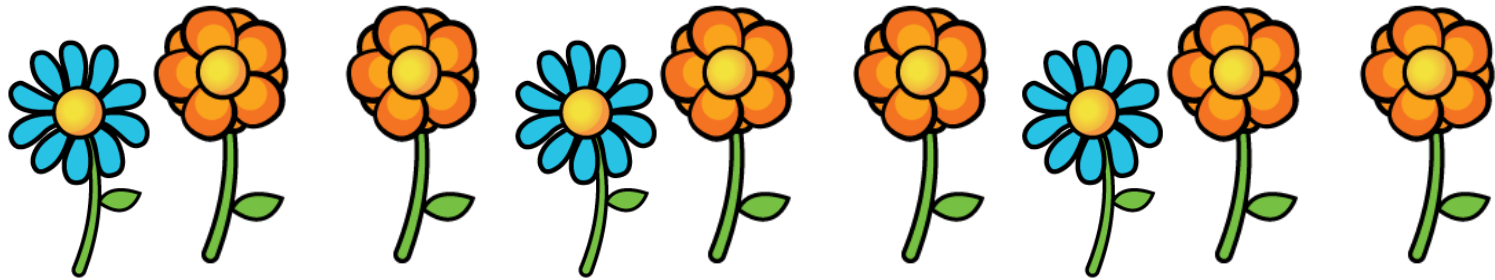
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width			
perimeter	 For every 1 triangle, there are 3 squares. Ratio of triangles to squares: 1:3 $\frac{1}{4}$ of the shapes are triangles.		
			

Ratio shows the relationship between a set of values.



For every 4 apples there are 2 pears.

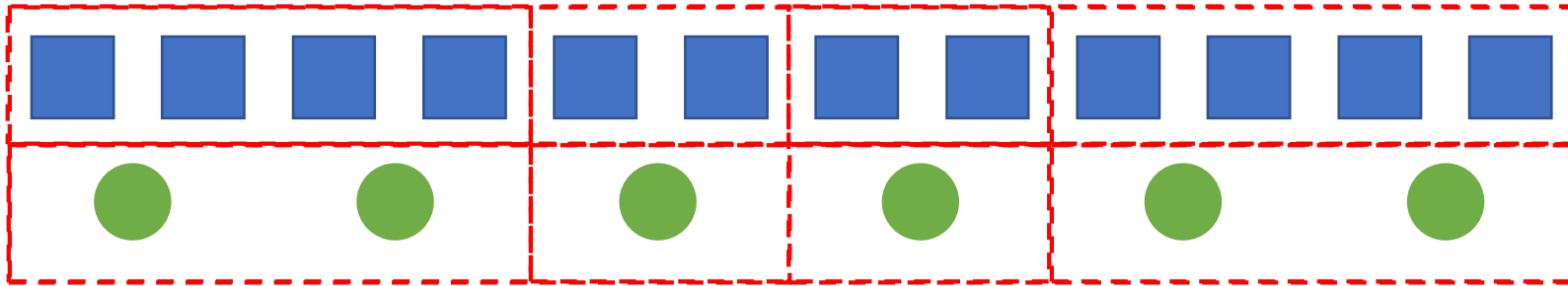
For every 2 pears there are 4 apples.



For every 3 blue flowers there are 6 orange flowers.

For every blue flower there are 2 orange flowers.

Have a think



For every 12 squares there are 6 circles.

For every 6 squares there are 3 circles.

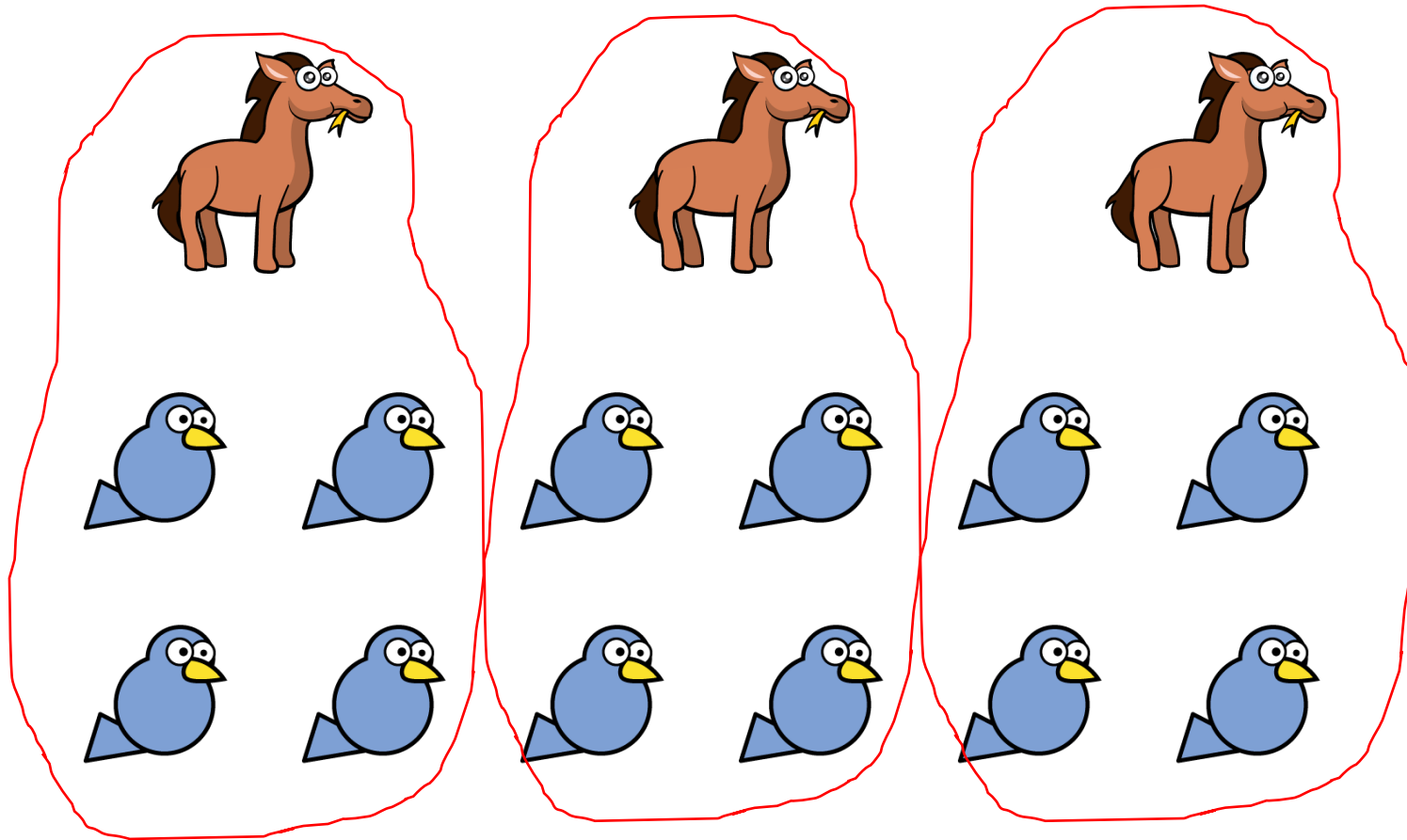
For every 2 circles there are 4 squares.

Have a think



Circle groups to match the statement.

For every 1 horse there are 4 birds.

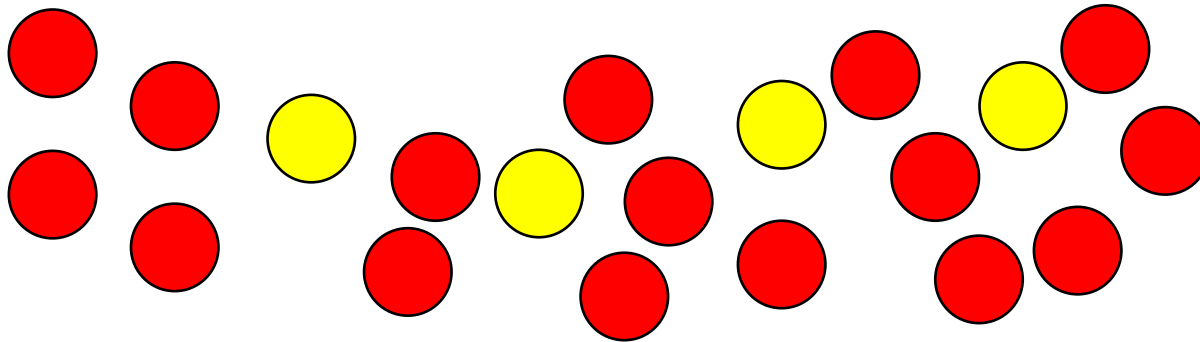


Recap...

Have a think



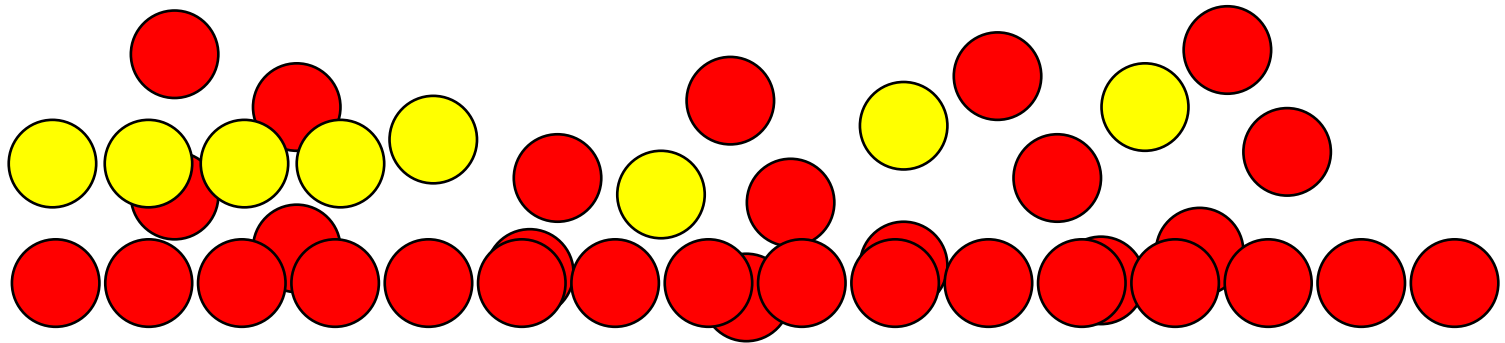
How many 'For every...' sentences can you write to describe the counters?



For every ____ red counters there are ____ yellow counters.

Recap...

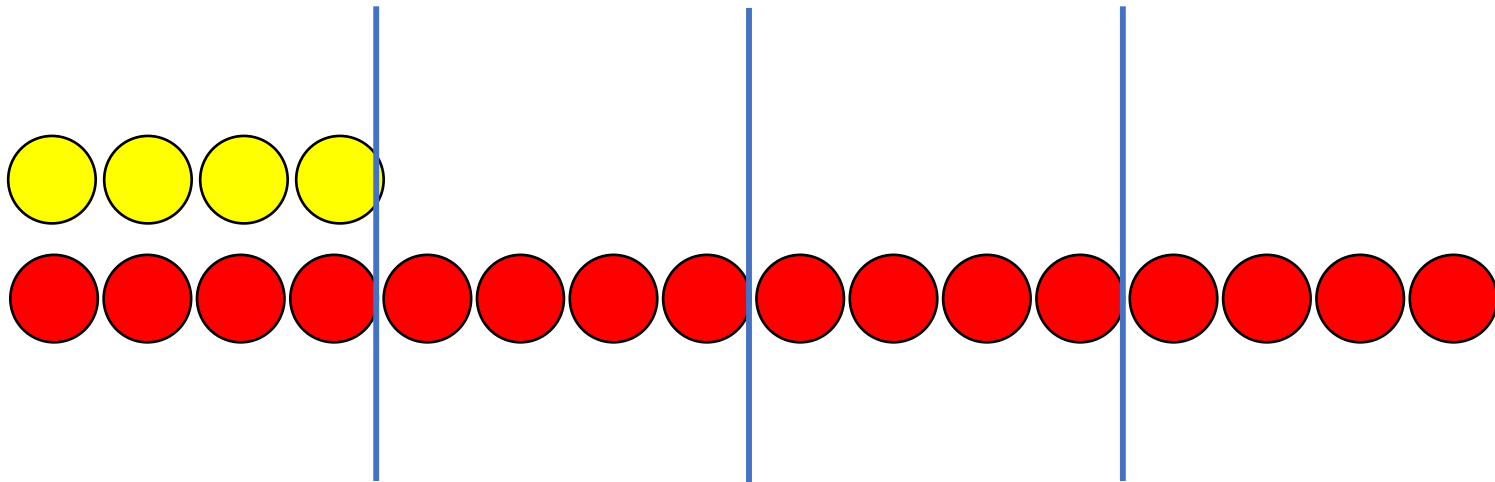
How many 'For every...' sentences can you write to describe the counters?



For every 16 red counters there are 4 yellow counters.

Recap...

How many 'For every...' sentences can you write to describe the counters?

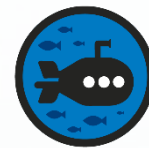


For every 16 red counters there are 4 yellow counters.

For every 8 red counters there are 2 yellow counters.

For every 4 red counters there is 1 yellow counter.

Ratio and Proportion Problems

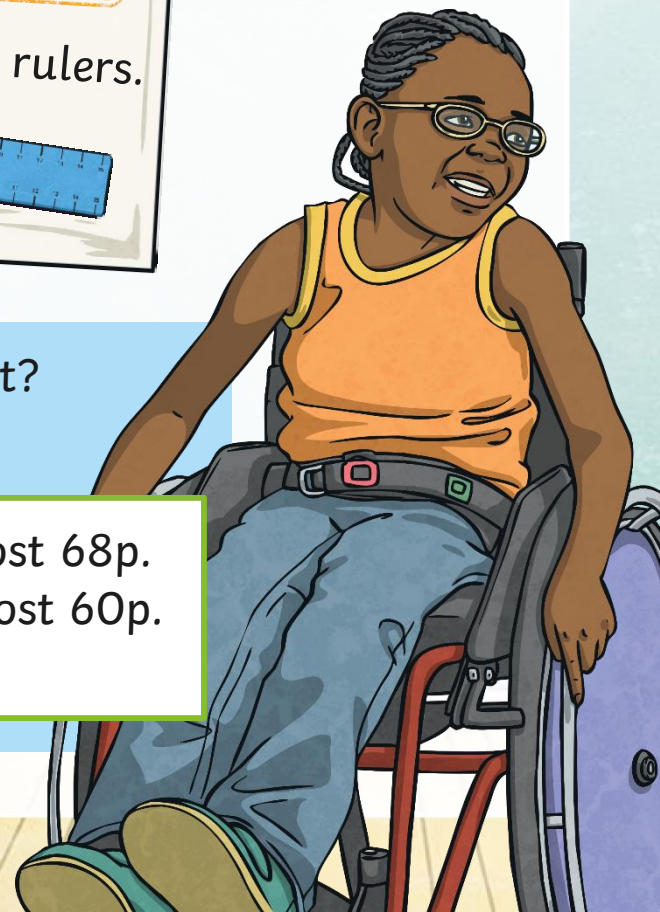


Two shops sell rulers.



Amy wants to buy 4 rulers. Which shop is cheapest?
Explain how you know.

Shop 1 sells each ruler at 17p so 4 rulers would cost 68p.
Shop 2 sells each ruler at 15p so 4 rulers would cost 60p.
Shop 2 is cheapest.



Using ratio language

Tues- Tri indep

1 Complete the sentences.

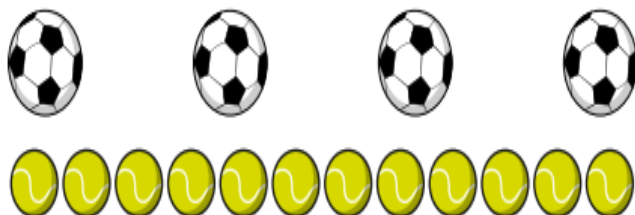


For every 3 sheep there are cows.

For every 2 cows there is sheep.

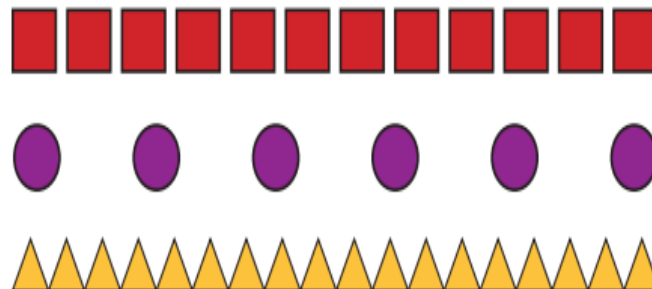
2 Circle groups to match the statements.

a) For every 1 football there are 3 tennis balls.



b) For every 2 cars there are 5 bicycles.

3 Here are some shapes.



Complete the sentences.

For every 6 squares there are circles.

For every 6 squares there are triangles.

For every 1 square there is a circle.

4 a) Make a tower of cubes that has 3 green cubes for every 1 red cube.

b) Compare your tower to a partner's tower.

What is the same and what is different about your tower?

5 For every 2 pencils there are 3 rulers.

Draw a picture to show this.



Tues

- 1) In Mrs Hull's year 6 class, there are 4 boys for every 1 girl.
Based on the ratio above, which statements could be true about Mrs Hull's class?
Explain your answers fully.

a) There are 15 boys and 15 girls in Mrs Hull's class.

b) There are 5 girls and 20 boys in Mrs Hull's class.

c) There are 13 boys in Mrs Hull's class.

- 2) Explain if you agree, partially agree or disagree with each of the children's statements about the shapes below. If you disagree, explain why.



Bisma

a

There are 6 squares for every 1 triangle.

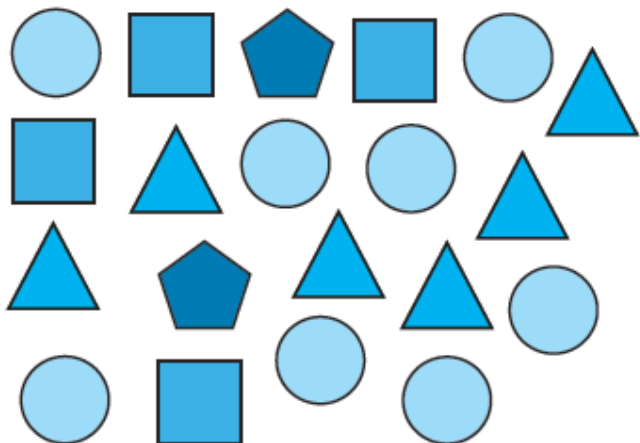


Sara





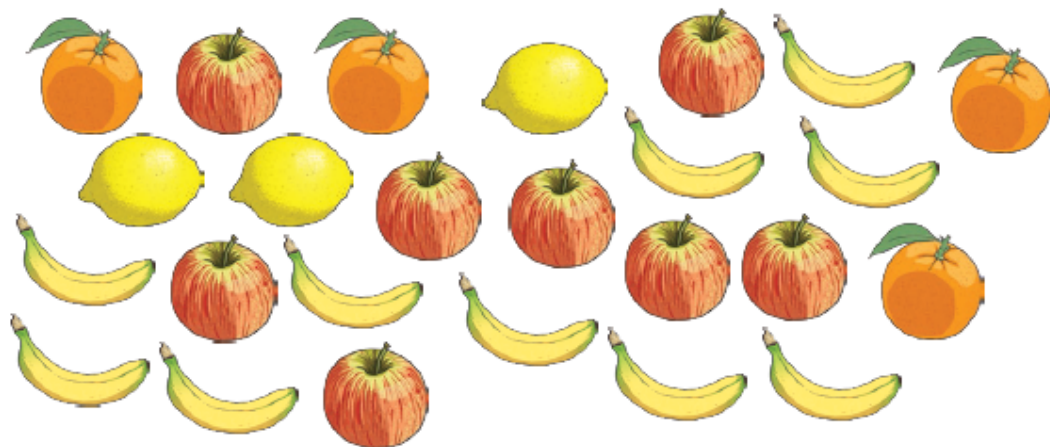
- 1) Complete the statements to describe the relationship between the quantities of each shape in this collection of shapes:



- a) For every 1 pentagon there are _____ triangles,
_____ squares and _____ circles.
- b) For every 5 pentagons there are _____ triangles,
_____ squares and _____ circles.
- c) For every 70 shapes there are _____ pentagons,
_____ triangles, _____ squares and _____ circles.

- 2) The quantities of each fruit bought by a family every week is shown below.

If the family continue to buy the same amount of fruit each week how many of each fruit will they have bought by the time they have bought 56 apples?



Apples: 56

Lemons: _____

Bananas: _____

Oranges: _____

Total: _____

Daily Maths Meeting



Tuesday

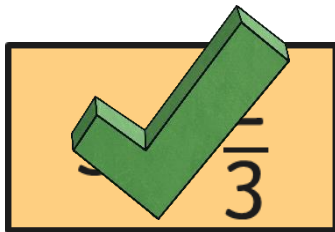
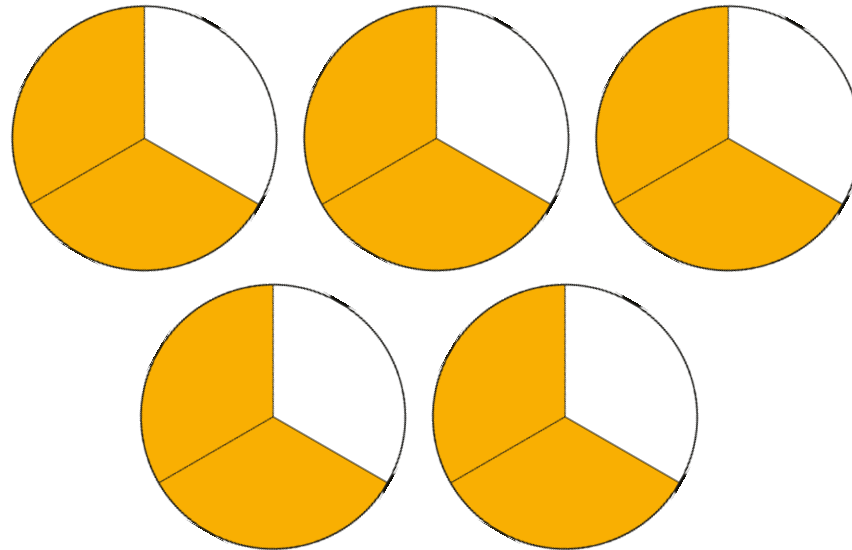
**Multiplying
fractions**

Recap...

Fraction Model Match-Up



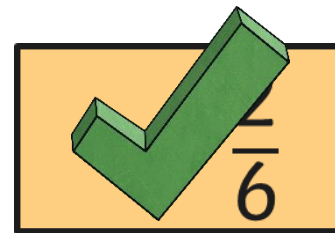
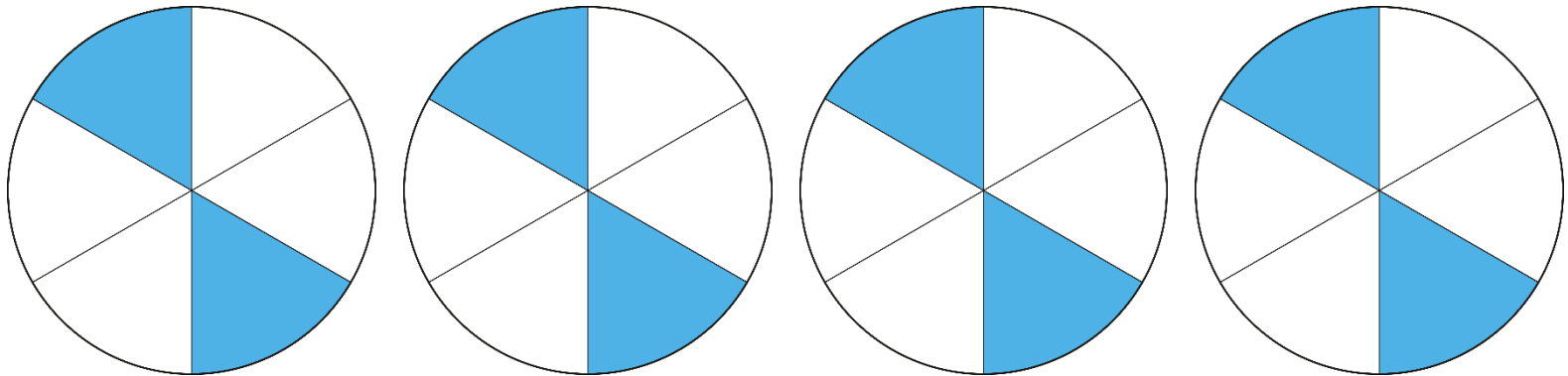
Choose the expression that correctly describes the coloured parts of this fraction model:



Fraction Model Match-Up



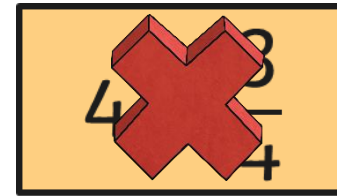
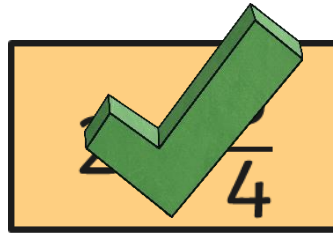
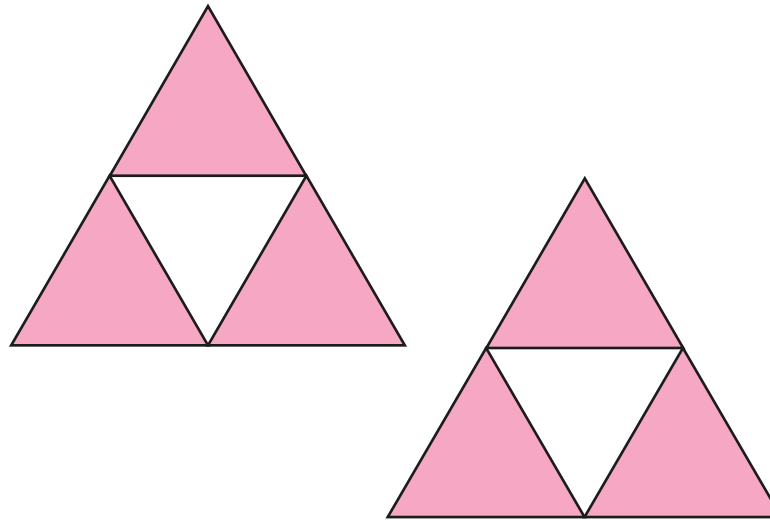
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Fraction Model Match-Up



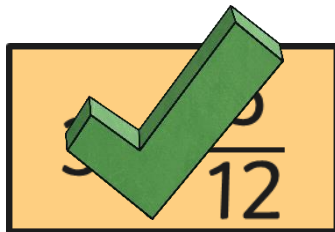
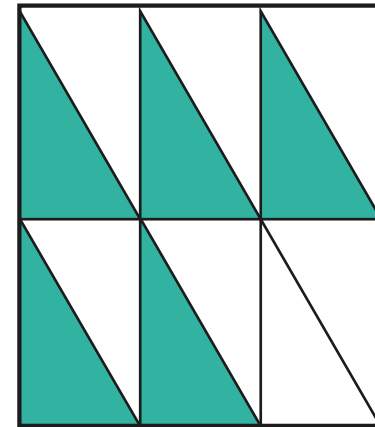
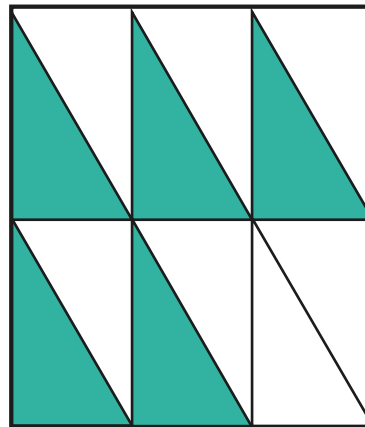
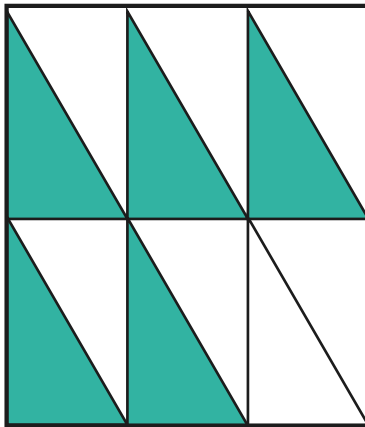
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Fraction Model Match-Up



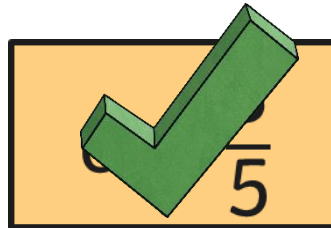
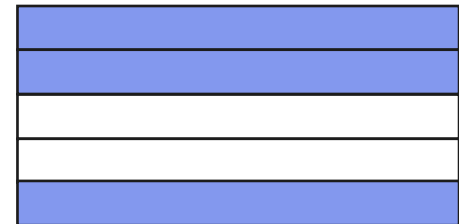
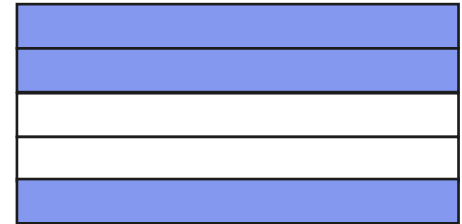
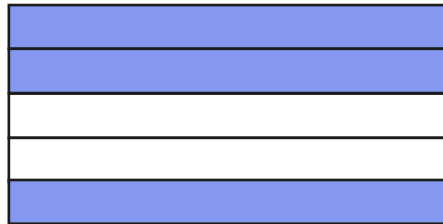
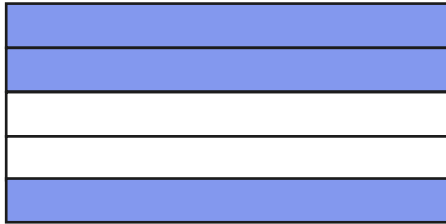
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Fraction Model Match-Up



Choose the expression that correctly describes the coloured parts of this fraction model:



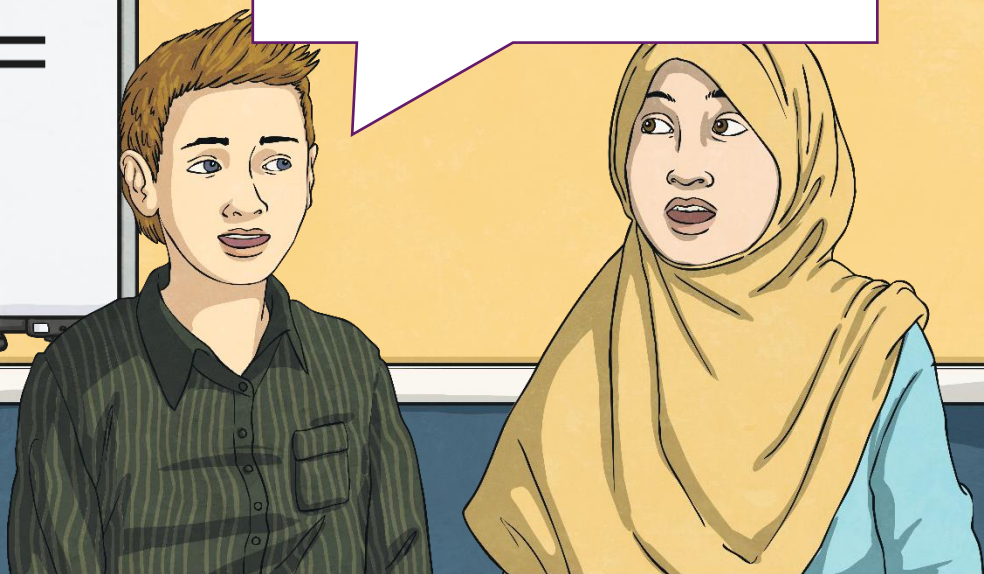
Multiplying Proper Fractions



Look at this fraction calculation:

$$\frac{5}{7} \times \frac{3}{5} =$$

Discuss with your partner methods you could use to find the answer to this fraction calculation.



Multiplying Proper Fractions



Method



Multiplying Proper Fractions



Multiply the numerators together.

$$\frac{4}{6} \times \frac{3}{8}$$

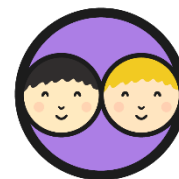
Multiply the denominators together.

If necessary, simplify the fraction by dividing by the greatest common factor.

$$= \frac{12}{48} = \frac{1}{4}$$

Here, the greatest common factor is 12.

Multiplying Proper Fractions

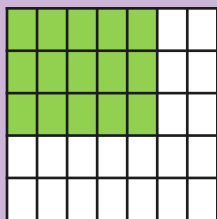


Solve these multiplying fraction problems using any of the methods:

Method 1

Bar Model

$$\frac{5}{7} \times \frac{3}{5}$$



Method 2

Multiply numerators and denominators then simplify.

$$\frac{4}{6} \times \frac{3}{8} = \frac{12}{48} = \frac{1}{4}$$

Method 3



Butterfly -

Look for common factors on the diagonal to simplify first. Then, multiply numerators and denominators.

$$\frac{1}{2} \times \frac{3}{5} = \frac{3}{10}$$

$$\frac{4}{9} \times \frac{2}{4} = \frac{2}{9}$$

$$\frac{7}{10} \times \frac{2}{5} = \frac{7}{25}$$

Triangles and Squares

Calculate the answer, show your working out.

1. $\frac{4}{6} \times \frac{2}{4}$	2. $\frac{2}{5} \times \frac{3}{8}$
3. $\frac{4}{6} \times \frac{3}{5}$	4. $\frac{1}{4} \times \frac{4}{9}$
5. $\frac{3}{4} \times \frac{4}{5}$	6. $\frac{6}{7} \times \frac{8}{10}$

Hexagons and Octagons

Calculate the answer, show your working out.

1.

$$\frac{4}{5} \times \frac{3}{8}$$

2.

$$\frac{6}{7} \times \frac{5}{8}$$

3.

$$\frac{4}{7} \times \frac{3}{6}$$

4.

$$\frac{8}{12} \times \frac{4}{10}$$

5.

$$\frac{8}{12} \times \frac{5}{8}$$

6.

$$\frac{4}{25} \times \frac{3}{10}$$

RATIO AND FRACTIONS



Weds 9.3.22 LO: To understand and use ratio and fractions

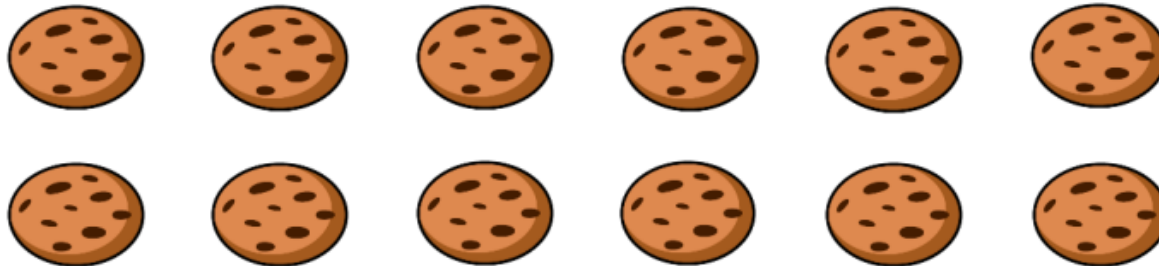
Oct EW plan

True or False?

Ratio and fractions

Tommy is sharing his 12 cookies with Jack.

Tommy gives Jack $\frac{1}{4}$ of the cookies.



For every cookie Jack has, Tommy has 3



True or False ?

Ratio and fractions

True



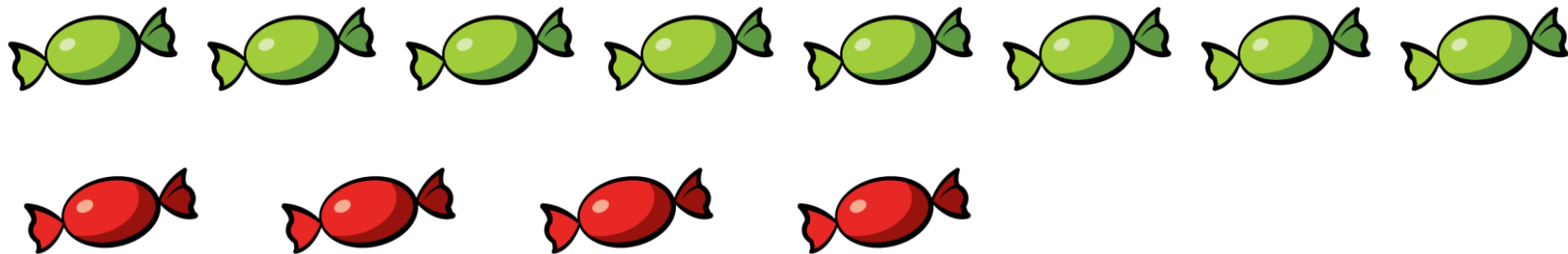
Jack



Tommy

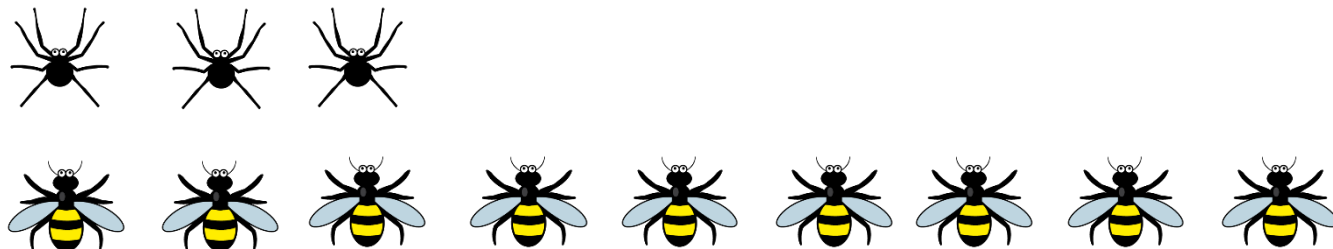


1) For every 8 green sweets there are ____ red sweets.



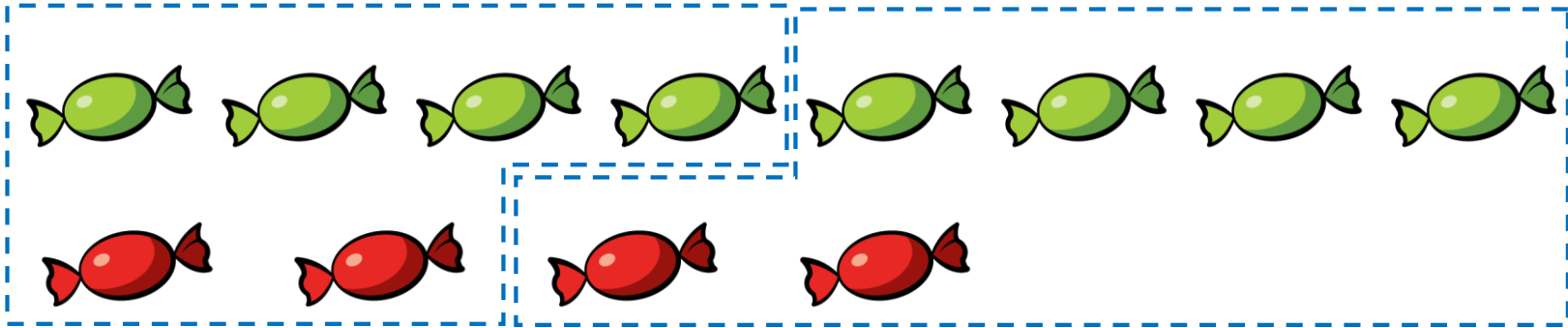
For every 4 green sweets there are ____ red sweets.

2) For every 3 spiders there are ____ bees.



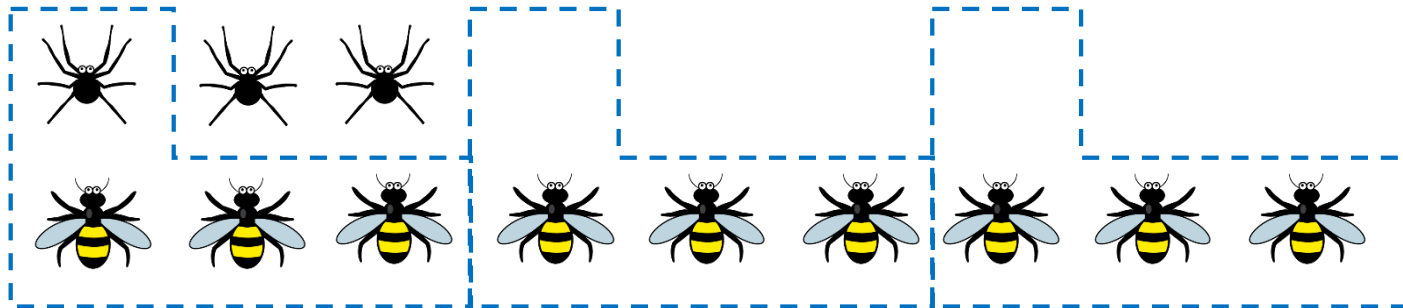
For every 3 bees there is ____ spider.

1) For every 8 green sweets there are 4 red sweets.

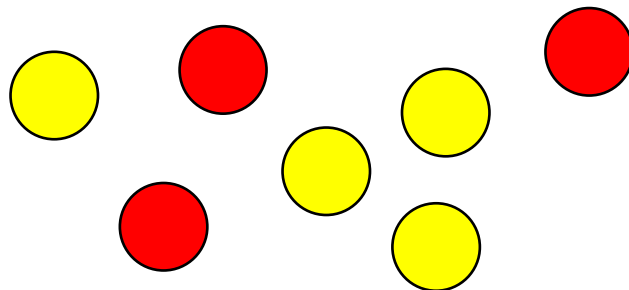


For every 4 green sweets there are 2 red sweets.

2) For every 3 spiders there are 9 bees.



For every 3 bees there is 1 spider.



There are 7 counters altogether.

There are 4 yellow counters.

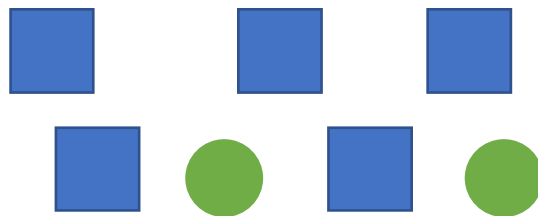
There are 3 red counters.

What fraction of the counters are yellow? $\frac{4}{7}$

What fraction of the counters are red? $\frac{3}{7}$

For every 4 yellow counters there are 3 red counters.

The ratio of yellow counters to red counters is 4 to 3



There are 7 shapes altogether.

There are 5 squares.

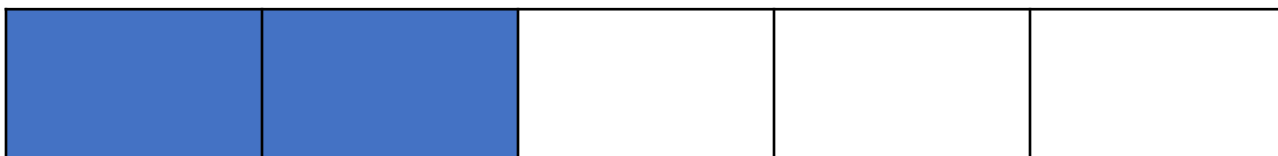
There are 2 circles.

What fraction are squares? $\frac{5}{7}$

What fraction are circles? $\frac{2}{7}$

For every 5 squares there are 2 circles.

The ratio of squares to circles is 5 to 2



What fraction of the bar is shaded? $\frac{2}{5}$

What fraction of the bar not shaded? $\frac{3}{5}$

Write the ratio of shaded to non-shaded parts.

For every 2 shaded parts there are 3 non-shaded parts.

2 to 3

Write the ratio of non-shaded to shaded parts.

3 to 2

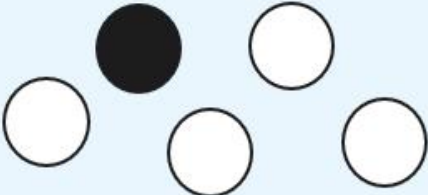
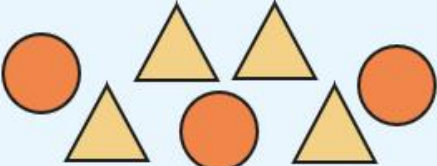
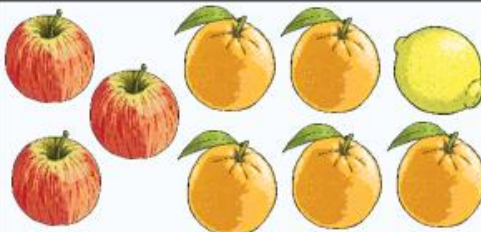
Over to you- Complete this table comparing ratios and fractions.



	Ratio	Fraction
	The ratio of black counters to white counters: 1:4	Black = $\frac{1}{5}$ White = $\frac{4}{5}$
	The ratio of apples to bananas: 1:3	Apple = $\frac{1}{4}$ Bananas = $\frac{3}{4}$
	For every <u>3</u> circles, there are <u>4</u> triangles.	Circles = $\frac{3}{7}$ Triangles = $\frac{4}{7}$
	The ratio of lemons to apples to oranges: 1:3:5	Lemons = $\frac{1}{9}$ Apple = $\frac{3}{9}$ Oranges = $\frac{5}{9}$

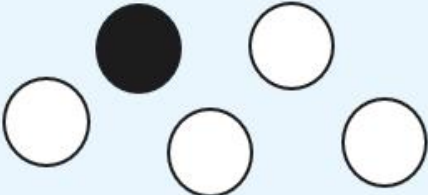
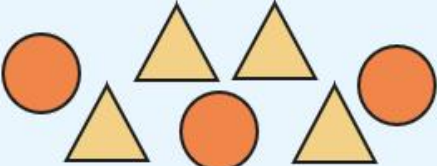
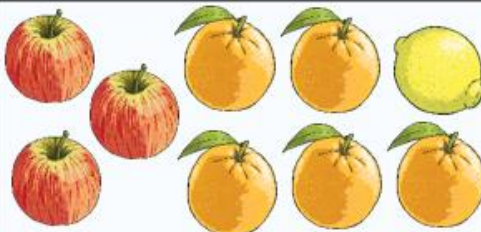
Over to you- Complete this table comparing ratios and fractions.



	Ratio	Fraction
	The ratio of black counters to white counters: 1:4	Black = $\frac{1}{5}$ White =
	The ratio of apples to bananas: 1:3	Apple = Bananas =
	For every ____ circles, there are ____ triangles.	Circles = Triangles =
	The ratio of lemons to apples to oranges: 1:3:5	Lemons = Apple = Oranges =

Over to you- Complete this table comparing ratios and fractions.



	Ratio	Fraction
	The ratio of black counters to white counters: 1:4	Black = $\frac{1}{5}$ White =
	The ratio of apples to bananas: 1:3	Apple = Bananas =
	For every ____ circles, there are ____ triangles.	Circles = Triangles =
	The ratio of lemons to apples to oranges: 1:3:5	Lemons = Apple = Oranges =

Talk task...



These statements describe the fruit using ratio and fraction language.

Which statements are true and which are false?

Correct the statements which are false.

✗

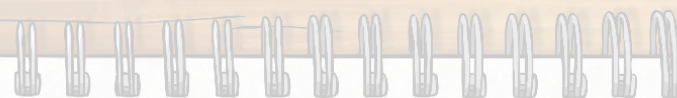


There are

apples.

of the fruit

les to



- a) Lemons are $\frac{2}{5}$ of the fruit.

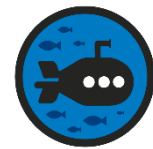
This is true.

- b) For every 2 lemons, there are 5 apples

This is false. For every two lemons there are three apples.

- c) The ratio of lemons to apples: 2:5

This is false. The ratio of lemons to apples is 2:3.



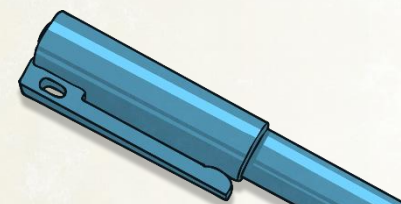
Look at the ratio and fraction statements for this bag of marbles.
Find the number of each different colour marble in the bag.

$\frac{1}{3}$ of the marbles
are blue.

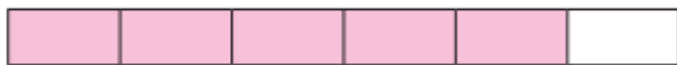
The ratio of red
marbles to white
marbles: 1:3

60 marbles
coloured blue,
red and white.

Blue marbles	20
Red marbles	10
White marbles	30



- 3 Part of the bar has been shaded.



a) What fraction of the bar is shaded?

b) What fraction of the bar is not shaded?

c) Write the ratio of shaded to non-shaded parts.

 to

d) Write the ratio of non-shaded to shaded parts.

 to

- 4 Here are some shapes.



a) What fraction of the shapes are circles?

b) What fraction of the shapes are stars?

c) What is the ratio of stars to circles?

 to

d) What is the ratio of circles to stars?

 to

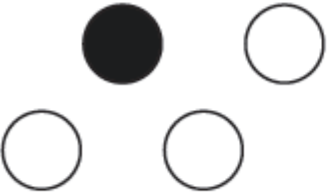
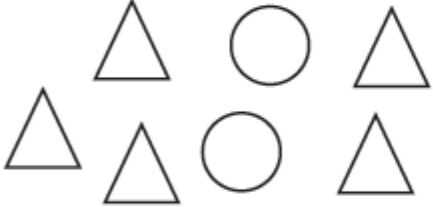
Can you find a different answer to each of these questions?

Compare with a partner.

Weds Triangles

Complete this table comparing ratios and fractions.



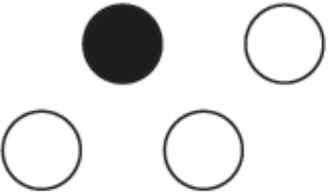
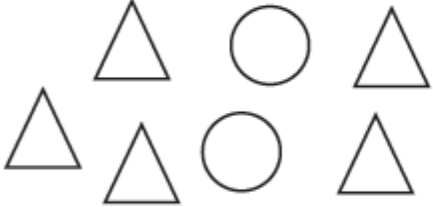
Objects	Ratio	Fraction
	The ratio of black counters to white counters: 1:3	Black = $\frac{1}{4}$ White =
	The ratio of apples to bananas: 1:2	Apple = Bananas =
	For every 2 circles, there are ____ triangles.	Circles = Triangles =
	The ratio of apples to lemons to oranges: 1:3:4	Apple = Lemons = Oranges =
	For every 2 squares, there are ____ circles and ____ triangles.	Squares = Circles = Triangles =

Weds Tri Ext
Squares



Complete this table comparing ratios and fractions.



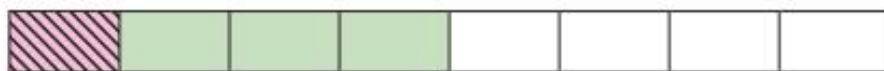
Objects	Ratio	Fraction
	The ratio of black counters to white counters: 1:3	Black = $\frac{1}{4}$ White =
	The ratio of apples to bananas: 1:2	Apple = Bananas =
	For every 2 circles, there are ____ triangles.	Circles = Triangles =
	The ratio of apples to lemons to oranges: 1:3:4	Apple = Lemons = Oranges =
	For every 2 squares, there are ____ circles and ____ triangles.	Squares = Circles = Triangles =

Weds Tri Ext
Squares



5

The bar model shows the ratio 1 to 3 to 4



Talk to a partner about how it shows this.

- a) What fraction of the bar is striped?
- b) What fraction of the bar is fully shaded?
- c) What fraction of the bar is blank?

6



Jack

The fraction of brown cubes is $\frac{2}{3}$ because the ratio of brown to yellow is 2 to 3

Rosie

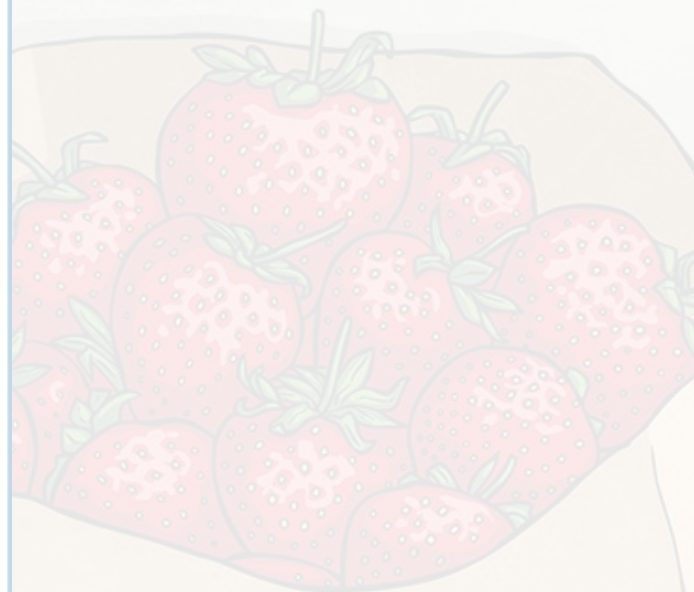


The fraction of brown cubes is $\frac{2}{5}$

Who is correct? _____

Explain your answer.

Weds Ext Squares



5 The bar model shows the ratio 1 to 3 to 4



Talk to a partner about how it shows this.

a) What fraction of the bar is striped?

b) What fraction of the bar is fully shaded?

c) What fraction of the bar is blank?

6



Jack

The fraction of brown cubes is $\frac{2}{3}$ because the ratio of brown to yellow is 2 to 3

Rosie

The fraction of brown cubes is $\frac{2}{5}$



Who is correct? _____

Explain your answer.

5 The bar model shows the ratio 1 to 3 to 4



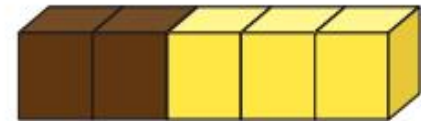
Talk to a partner about how it shows this.

a) What fraction of the bar is striped?

b) What fraction of the bar is fully shaded?

c) What fraction of the bar is blank?

6



Jack

The fraction of brown cubes is $\frac{2}{3}$ because the ratio of brown to yellow is 2 to 3

Rosie

The fraction of brown cubes is $\frac{2}{5}$



Who is correct? _____

Explain your answer.

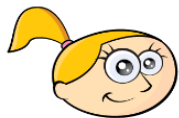
Weds Ext
Squares



The fraction shaded is $\frac{1}{5}$ and the ratio of shaded to non-shaded parts is 1 to 5



The fraction shaded is $\frac{1}{6}$ and the ratio of shaded to non-shaded parts is 1 to 6



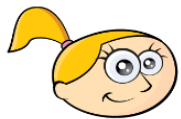
The fraction shaded is $\frac{1}{6}$ and the ratio of shaded to non-shaded parts is 1 to 5

Who is correct? Prove it!



The fraction shaded is $\frac{1}{5}$ and the ratio of shaded to non-shaded parts is 1 to 5

The fraction shaded is $\frac{1}{6}$ and the ratio of shaded to non-shaded parts is 1 to 6

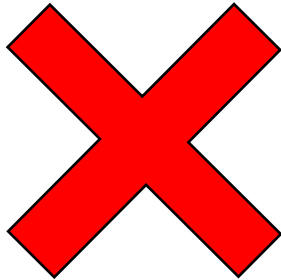
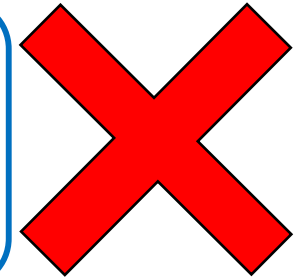


The fraction shaded is $\frac{1}{6}$ and the ratio of shaded to non-shaded parts is 1 to 5

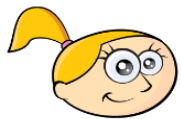
Who is correct? Prove it!



The fraction shaded is $\frac{1}{5}$ and the
ratio of shaded to non-shaded
parts is 1 to 5



The fraction shaded is $\frac{1}{6}$ and the
ratio of shaded to non-shaded
parts is 1 to 6



The fraction shaded is $\frac{1}{6}$ and the
ratio of shaded to non-shaded
parts is 1 to 5



For every 1 shaded part there are 5 non-shaded parts.



Look at the ratio and fraction statements. Find the total value of 1p, 2p and 5p coins contained in this bag. After, find the quantity of each type of coin.

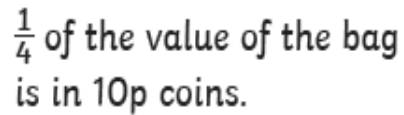
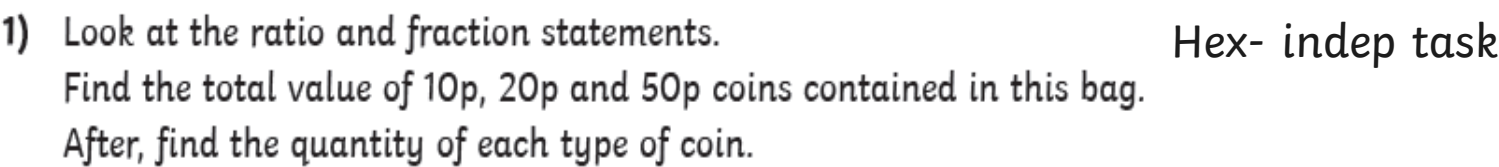
Coin	Total Value	Quantity of Coins
1p	10p	10
2p	30p	15
5p	£1	20

$\frac{1}{14}$ of the value of the bag is in 1p coins

The ratio of 2p coins to 5p coins: 3:4

£1.40 in
1p, 2p and
5p coins



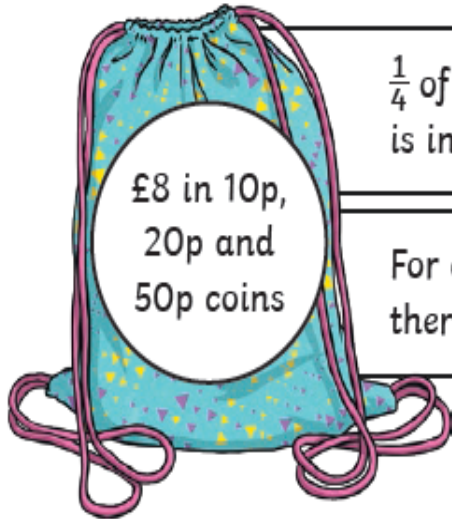


For every one 20p coin,
there are two 50p coins.

Coin	Total Value	Quantity of Coins
10p		
20p		
50p		

[illegible]

- After, find the quantity of each type of coin.



For every one 20p coin,
there are two 50p coins.

Coin	Total Value	Quantity of Coins
10p		
20p		
50p		

[illegible]

Daily Maths Meeting



Wednesday

**Roman
Numerals**



The Skip Counting by 9 Song

<https://www.youtube.com/watch?v=4BLZK>

In the skip by 9 song...

It said that all multiples of nine add up to 9...

Let's test it!

823

621

1431

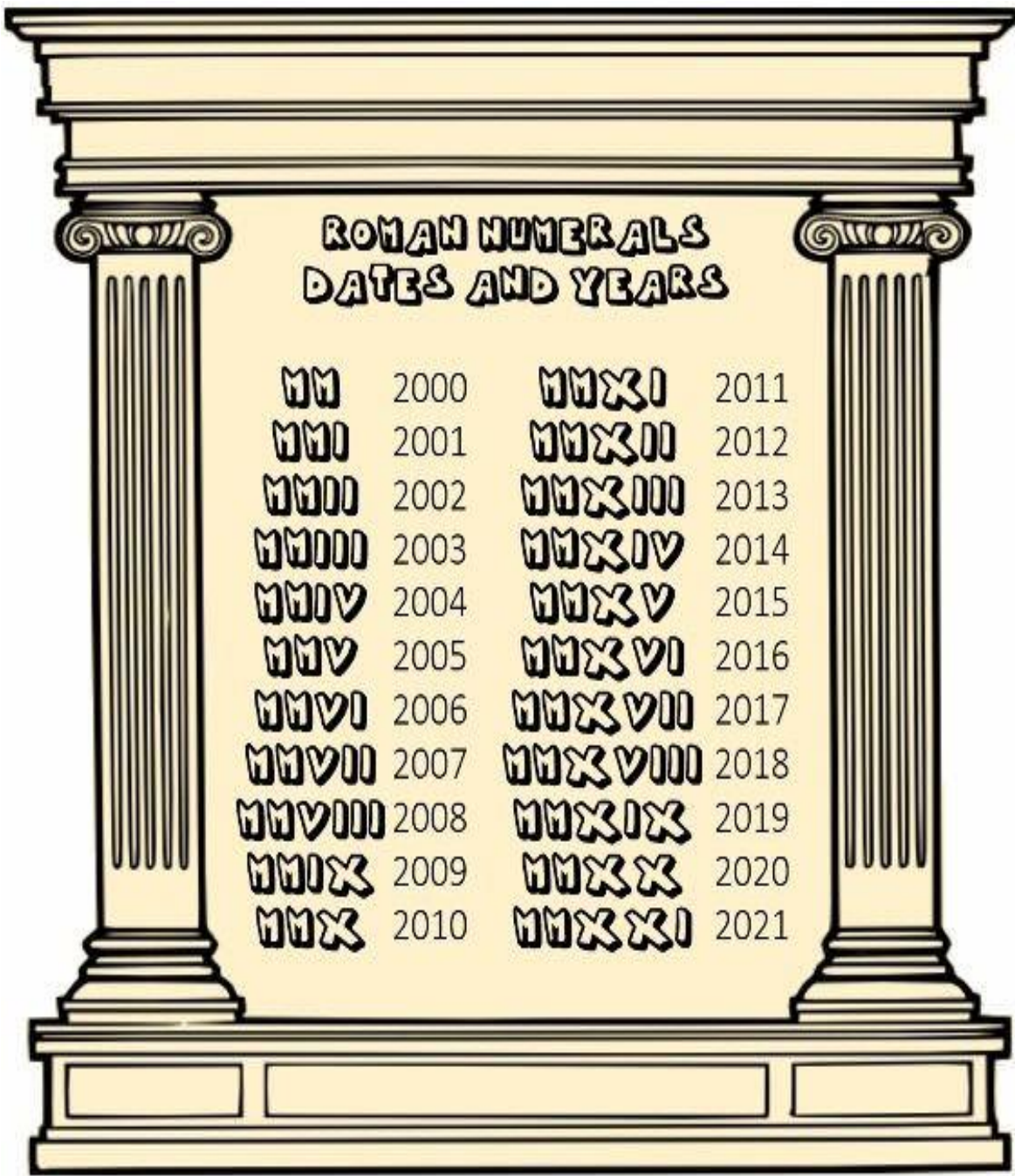
I = 1		V = 5		X = 10		L = 50		C = 100		M = 1000	
1 I	2 II	3 III	4 IV	5 V	6 VI	7 VII	8 VIII	9 IX	10 X		
11 XI	12 XII	13 XIII	14 XIV	15 XV	16 XVI	17 XVII	18 XVIII	19 XIX	20 XX		
21 XXI	22 XXII	23 XXIII	24 XXIV	25 XXV	26 XXVI	27 XXVII	28 XXVIII	29 XXIX	30 XXX		
31 XXXI	32 XXXII	33 XXXIII	34 XXXIV	35 XXXV	36 XXXVI	37 XXXVII	38 XXXVIII	39 XXXIX	40 XL		
41 XLI	42 XLII	43 XLIII	44 XLIV	45 XLV	46 XLVI	47 XLVII	48 XLVIII	49 XLIX	50 L		
51 LI	52 LII	53 LIII	54 LIV	55 LV	56 LVI	57 LVII	58 LVIII	59 LIX	60 LX		
61 LXI	62 LXII	63 LXIII	64 LXIV	65 LXV	66 LXVI	67 LXVII	68 LXVIII	69 LXIX	70 LXX		
71 LXXI	72 LXXII	73 LXXIII	74 LXXIV	75 LXXV	76 LXXVI	77 LXXVII	78 LXXVIII	79 LXXIX	80 LXXX		
81 LXXXI	82 LXXXII	83 LXXXIII	84 LXXXIV	85 LXXXV	86 LXXXVI	87 LXXXVII	88 LXXXVIII	89 LXXXIX	90 XC		
91 XCI	92 XCII	93 XCIII	94 XCIV	95 XCV	96 XCVI	97 XCVII	98 XCVIII	99 XCIX	100 C		

Ones	I	II	III	IV	V	VI	VII	VIII	IX
Tens	X	XX	XXX	XL	L	LX	LXX	LXXX	XC
Hundreds	C	CC	CCC	CD	D	DC	DCC	DCCC	CM
Thousands	M	MM	MMM	$\overline{\text{IV}}$	$\overline{\text{V}}$	$\overline{\text{VI}}$	$\overline{\text{VII}}$	$\overline{\text{VIII}}$	$\overline{\text{IX}}$

ROMAN NUMERALS

ARABIC NUMERAL	ROMAN NUMERAL	ARABIC NUMERAL	ROMAN NUMERAL
1	I	20	XX
2	II	30	XXX
3	III	40	XL
4	IV	50	L
5	V	60	LX
6	VI	70	LXX
7	VII	80	LXXX
8	VIII	90	XC
9	IX	100	C
10	X	500	D
		1000	M





ROMAN NUMERALS DATES AND YEARS

MM	2000	MMXI	2011
MMI	2001	MMXII	2012
MMII	2002	MMXIII	2013
MMIII	2003	MMXIV	2014
MMIV	2004	MMXV	2015
MMV	2005	MMXVI	2016
MMVI	2006	MMXVII	2017
MMVII	2007	MMXVIII	2018
MMVIII	2008	MMXIX	2019
MMIX	2009	MMXX	2020
MMX	2010	MMXXI	2021

Write in Roman numerals

9500

4620

4600

Write in Roman numerals

3567

9350

6720

Give me:

A number
more than
fifty that
can
be divided
exactly by
four.

Give me:

A three digit
number that
is
a multiple
of six.

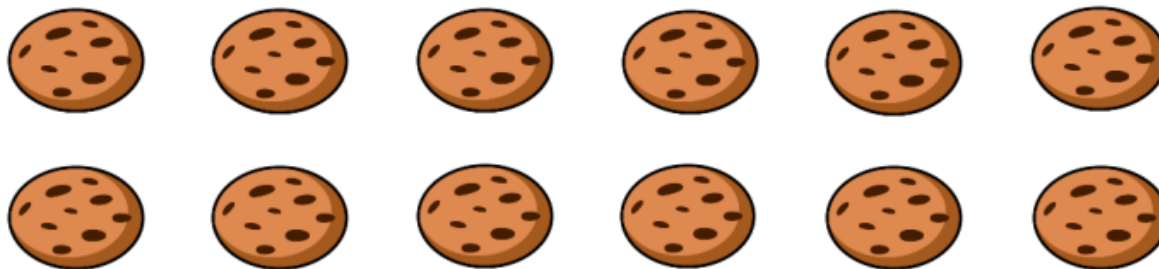
Thurs 10.3.22 LO: To solve ratio problems

True or False?

Ratio and fractions

Tommy is sharing his 12 cookies with Jack.

Tommy gives Jack $\frac{1}{4}$ of the cookies.



For every cookie Jack has, Tommy has 3



1) What is the ratio of cookies to donuts?



2) The ratios show shaded parts to non-shaded parts. Match the ratios to the bar models.

3 : 5



1 : 3



3 : 1



1) What is the ratio of cookies to donuts?

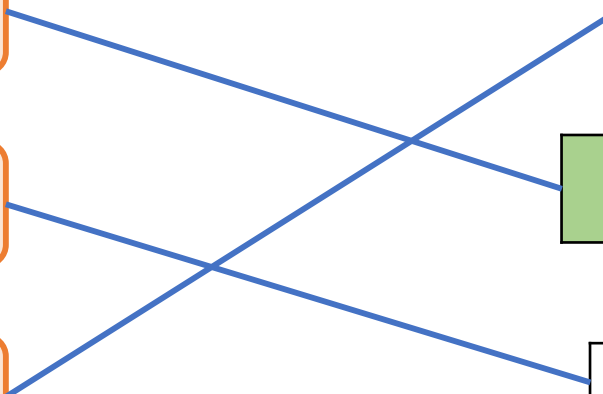
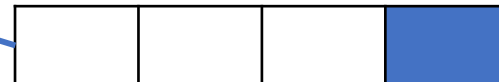


2) The ratios show shaded parts to non-shaded parts. Match the ratios to the bar models.

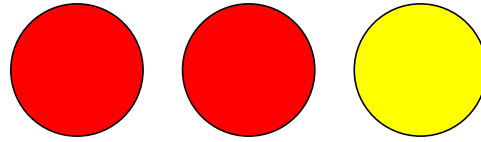
3 : 5

1 : 3

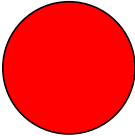
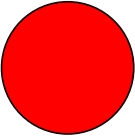
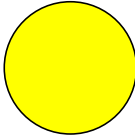
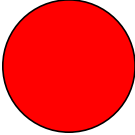
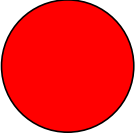
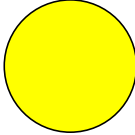
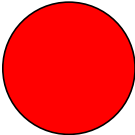
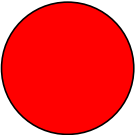
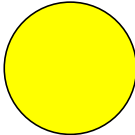
3 : 1



For every 2 red counters, there's 1 yellow counter.



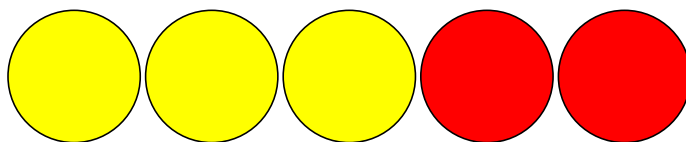
If there are 6 red counters, how many yellow counters are there? 3

2				1
4				2
6				3

If there are 7 yellow counters, how many red counters are there? 14

Activity 1

For every 3 yellow counters, there's 2 red counters.

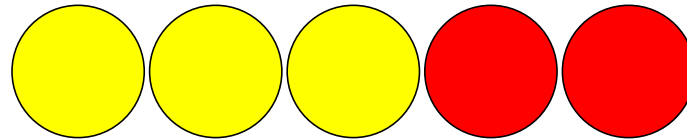


If there are 6 red counters, how many yellow counters are there?

If there are 18 yellow counters, how many red counters are there?

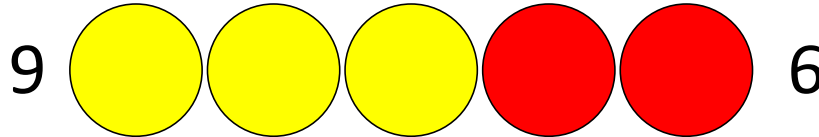
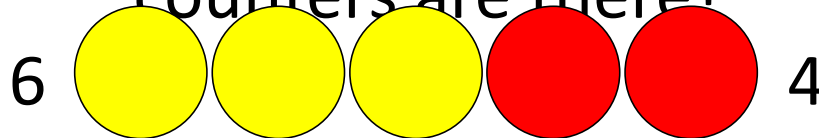
Activity 1

For every 3 yellow counters, there's 2 red counters.



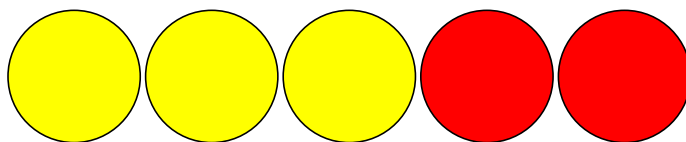
If there are 6 red counters, how many yellow counters are there? 9

If there are 3 yellow counters, how many red counters are there? 2



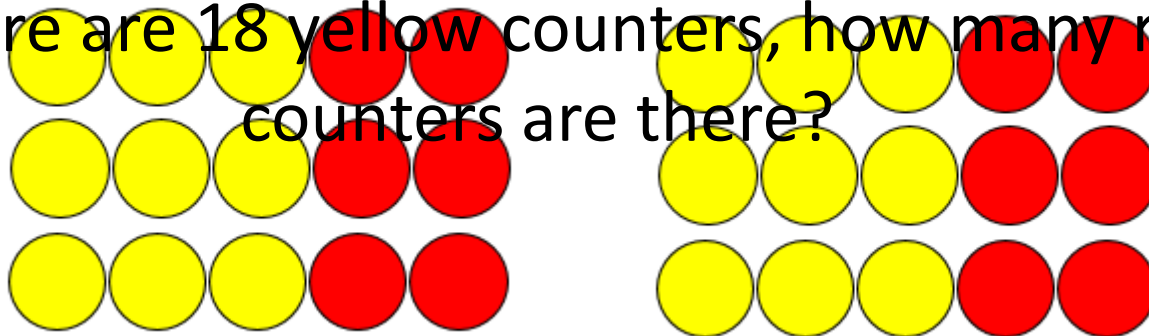
Activity 1

For every 3 yellow counters, there's 2 red counters.



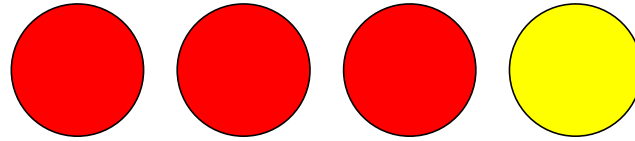
If there are 6 red counters, how many yellow counters are there?

If there are 18 yellow counters, how many red counters are there?



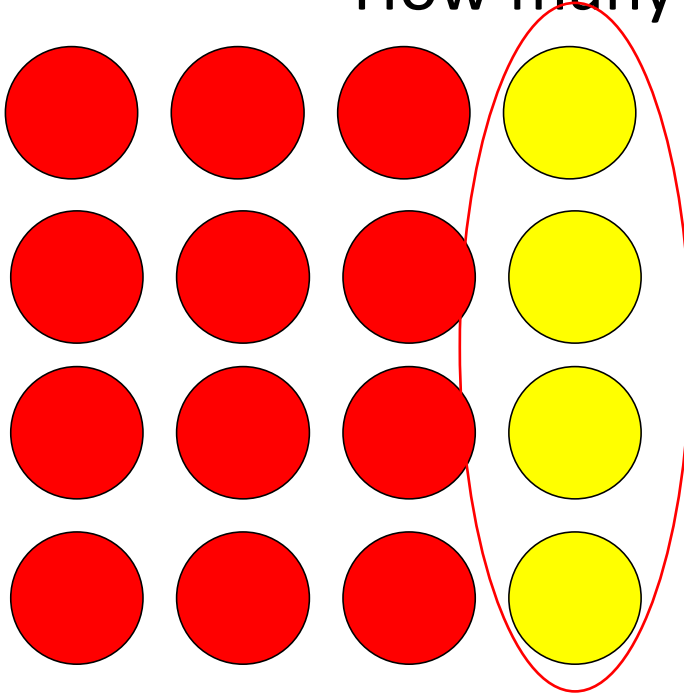
12 red counters

The ratio of red to yellow counters is 3 : 1



There are 16 counters in total.

How many counters are yellow?



$$\begin{array}{l}
 \text{R} \quad \boxed{4} \boxed{4} \boxed{4} \\
 \text{Y} \quad \boxed{4}
 \end{array}
 \left. \vphantom{\begin{array}{l} \text{R} \\ \text{Y} \end{array}} \right\} 16$$

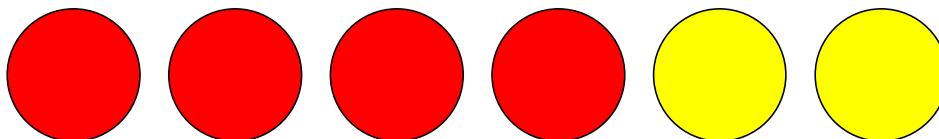
$$16 \div 4$$

Activity 2

Have a think



The ratio of red to yellow counters is 4 : 2

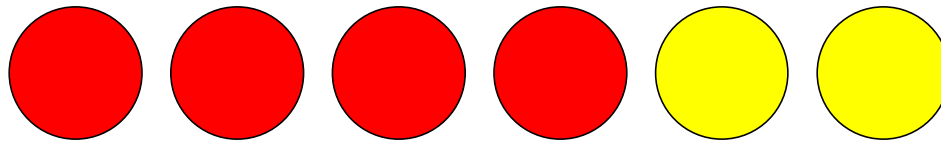


There are 18 counters in total.

How many counters are red?

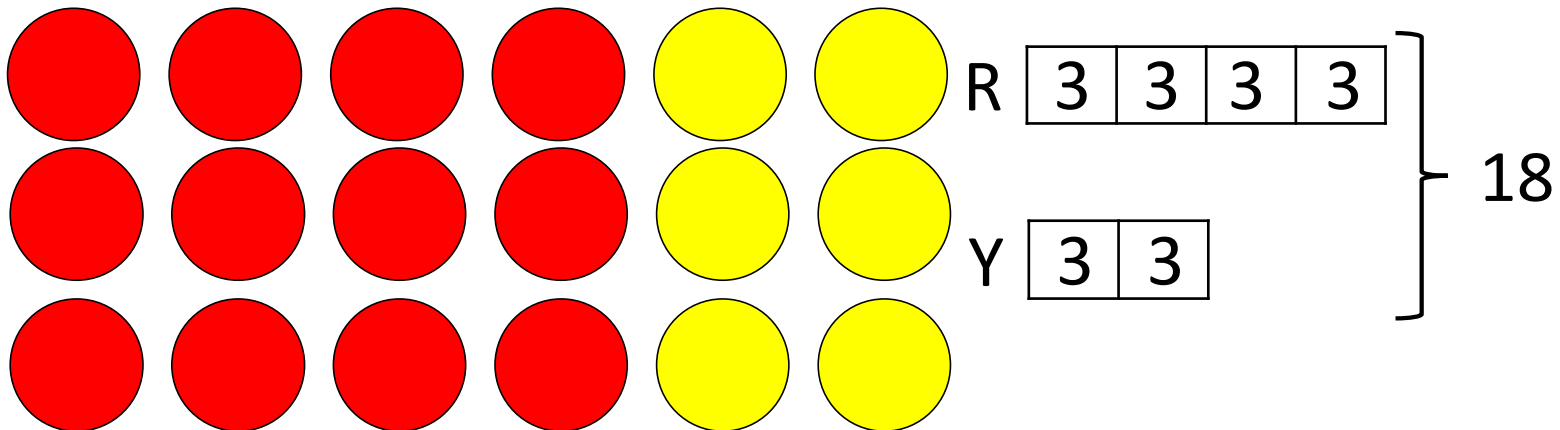
Activity 2

The ratio of red to yellow counters is 4 : 2



There are 18 counters in total.

How many counters are red?



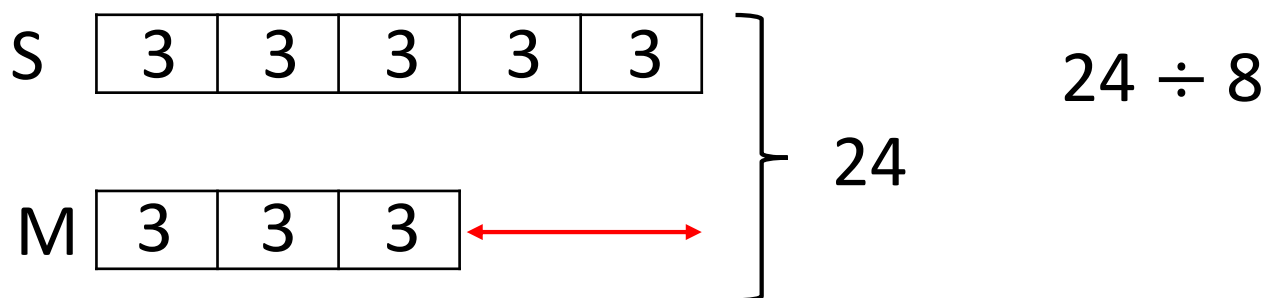
$$18 \div 6$$

Dora is practising her shooting skills.
In total she takes 24 penalties.



For every 5 penalties she scores, she misses 3

How many penalties does Dora score? 15



How many more penalties does Dora score than miss? 6

Activity 3

Have a think

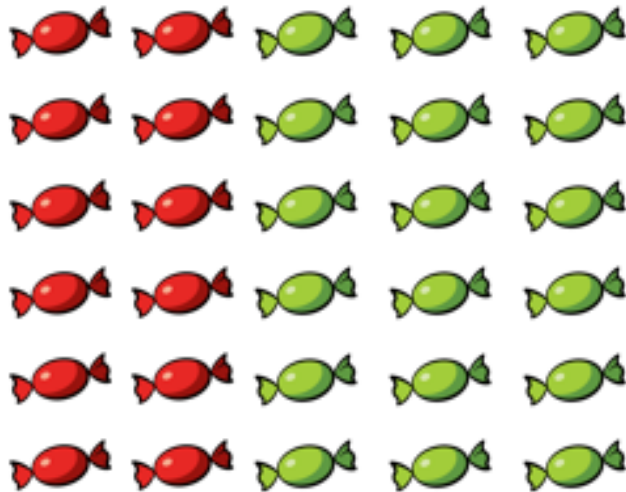


Tommy has a packet of sweets.

For every 2 red sweets there are 3 green sweets.

If there are 30 sweets in the packet in total,
how many of each colour are there?

Activity 3



$$\begin{array}{l} \text{R} \quad \boxed{6} \quad \boxed{6} \\ \text{G} \quad \boxed{6} \quad \boxed{6} \quad \boxed{6} \end{array} \left. \vphantom{\begin{array}{l} \text{R} \\ \text{G} \end{array}} \right\} 30$$

$$30 \div 5$$

12 red sweets and 18 green sweets.

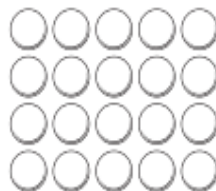
- 1 Eva is baking cakes and cookies.
For every 1 cake, she will bake 2 cookies.



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?

<https://vimeo.com/516638886>

- 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

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Hex
Thurs

6

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juice

water

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water

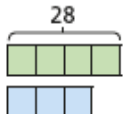
- 7 A group of students study French or German in the ratio 3:7
- a) Which subject has the most students? _____
- b) Draw a diagram to represent this.

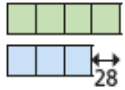
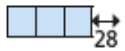
- c) There are 80 students in total.
How many more students study German than French?

Oct
Thurs

- 8 Describe a situation for each bar model.

a) green  _____
blue  _____

b)  _____
green  _____
blue  _____

c) green  _____
blue  _____

Compare answers with a partner.

What is the same and what is different?



Daily Maths Meeting



Thursday

Place Value

Write 207 in Roman numerals.

Reveal answer

+ and -

Solve this column addition:

$$\begin{array}{r} 95222 \\ + 68096 \\ \hline \\ \hline \end{array}$$

Reveal answer

× and ÷

Use a written method to solve this calculation:

$$5288 \div 8 =$$

Reveal answer

Fractions

What number is hidden in these equivalent fractions?

$$\frac{4}{5} = \frac{\text{leaf}}{15}$$

Reveal answer

Problem Solving

Hexagon + Triangle + Pentagon =
How many sides are there in total?

Reveal answer

Reasoning

If I count on from 20 in steps of 4, I will say the number 32.

Is Alison correct?
Explain your reasoning.



Place Value

Write 207 in Roman numerals.

CCVII

Reveal answer

+ and -

Solve this column addition:

$$\begin{array}{r} 95222 \\ + 68096 \\ \hline 163318 \\ \hline 11 \end{array}$$

Reveal answer

× and ÷

Use a written method to solve this calculation:

$$5288 \div 8 = 661$$

Reveal answer

Fractions

What number is hidden in these equivalent fractions?

$$\frac{4}{5} = \frac{\text{leaf}}{15}$$

Reveal answer

Problem Solving

Hexagon + Triangle + Pentagon = **14**
How many sides are there in total?

Reveal answer

Reasoning

If I count on from 20 in steps of 4, I will say the number 32.

Is Alison correct?
Explain your reasoning.



Do, then explain...

**985652, 965285, 985825, 955862,
988562**

If you wrote these numbers in order
starting with the smallest, which number
would be third?

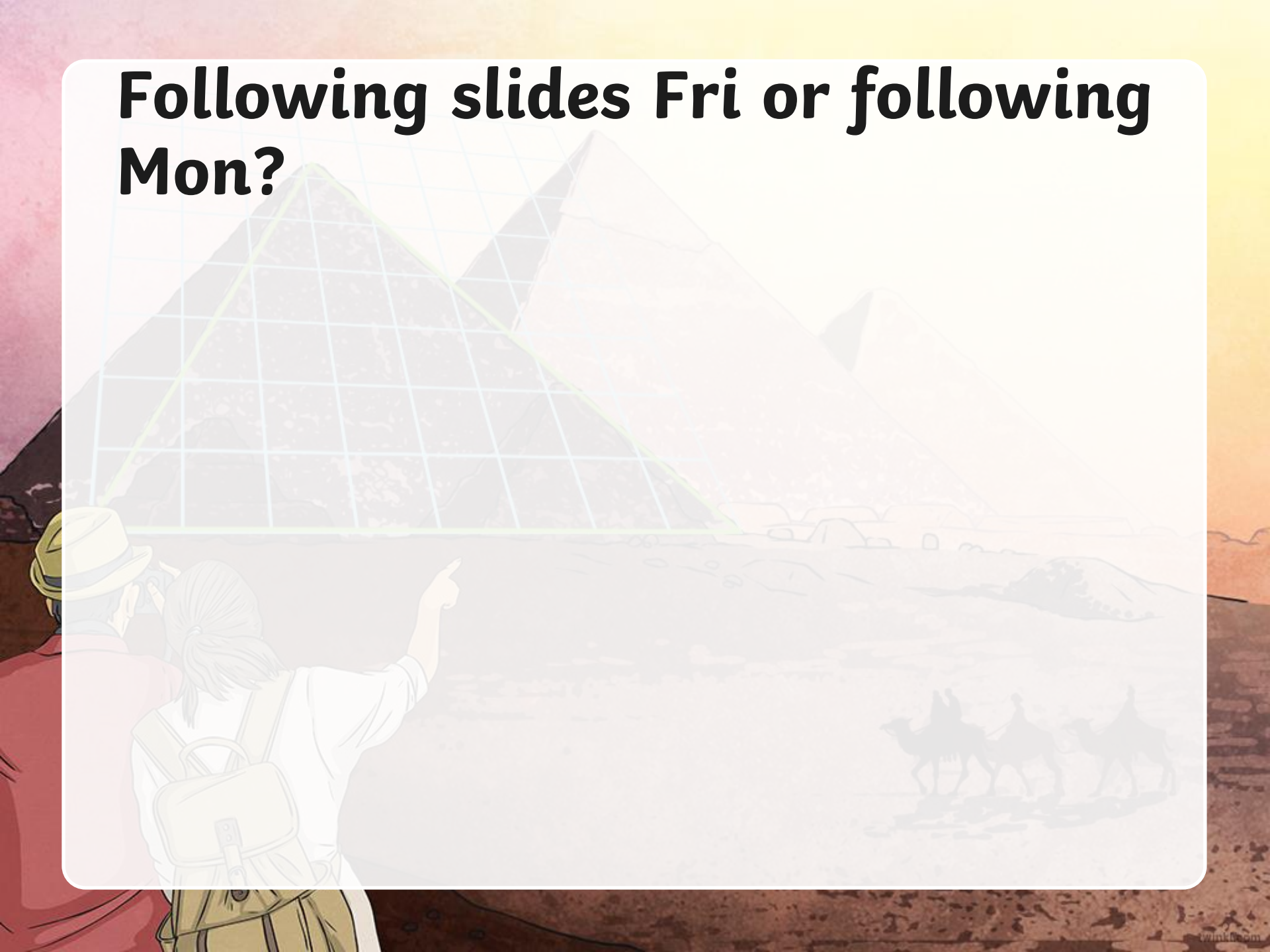
Explain how you ordered the numbers.

Thursday

Skip counting by 8

<https://www.youtube.com/watch?v=A5b5x4FcFOU>

**Following slides Fri or following
Mon?**



Mrs Cooper-Squares- Guided tasks

Ratio and Proportion Problems



A vegetable casserole is cooked for 35 minutes for every 1 litre of casserole. For how many hours will it need to be cooked if there is $3\frac{1}{2}$ litres of casserole?

$$3 \times 35 \text{ minutes} = 105 \text{ minutes}$$

$$\frac{1}{2} \times 35 \text{ minutes} = 17.5 \text{ minutes or } 17 \text{ minutes and } 30 \text{ seconds}$$

$$\text{Total} = 122 \text{ minutes } 30 \text{ seconds or } 2 \text{ hours, } 2 \text{ minutes and } 30 \text{ seconds}$$



Mrs Cooper-Squares- Guided tasks



Ratio and Proportion Problems

Anna is making fruit smoothies using this recipe:

Recipe for Fruit Smoothie

(serves 6 people)

600g bananas

360g strawberries

240g raspberries

420ml milk

90ml natural yogurt

Anna is making
smoothies for 42 people.

600g raspberries

1050ml or 1.05l milk

225ml natural yogurt

c

- Give the quantities of each ingredient Anna will need if she makes a smoothie for herself and her two friends.
- Anna holds a birthday party. Give the quantities of each ingredient she will need for the party in order to serve the 15 people that attend the party.
- Anna is using 630ml of natural yogurt. How many people is she making smoothies for?

- 1) Freya is making fruit smoothies using this recipe:



Recipe for Fruit Smoothie
(serves 4 people)

500g bananas 
200g strawberries 
180g raspberries 
360ml milk 
80ml natural yogurt 

- a) Write the quantities of each ingredient Freya will need if she makes a smoothie for herself and her friend.
- b) Freya is making smoothies for 6 people. Write the quantities of each ingredient she will need.
- c) Freya holds a birthday party for a total of 16 people. Give the quantities of each ingredient she will need for the party.
- d) Freya is using 400ml of natural yogurt. How many people is she making smoothies for?
- 2) A beef stew is cooked for 40 minutes for every 1 litre of stew. For how many hours will it need to be cooked if there is $4\frac{1}{2}$ litres of stew?
- 3) Two friends are sharing a collection of 48 football cards. Jack gives Owen three cards for every one card that he keeps for himself.
- How many football cards does Jack keep for himself?



- 4) There are two shops that sell the same glue sticks.

Special Offer

Only £2.96 for
4 glue sticks!

The Stationery Shop

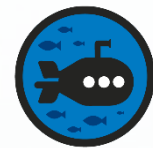
Special Offer

Just £6.57 for
9 glue sticks!

Cheap Stationery

Which shop sells glue sticks for the lowest price?
Explain how you know.

Hexagons Mrs Lund/ Octagons- independent



Shu, Lowri and Hamish are discussing how much pocket money they each get.

Shu

I get £6.20 every two weeks.



Lowri

I get 12.80 every four weeks.



Hamish

I get £9.90 every three weeks.



True or false? Explain your answers fully.

- a) Hamish would receive £13.20 pocket money over a period of 4 weeks.
This is true. Hamish receives £3.30 per week. He would get £13.20 over 4 weeks.
- b) Over a period of 3 weeks, Shu would get more pocket money than Lowri.
**This is false. Shu would get £9.30 over three weeks.
Lowri would get £3.20 a week.
Lowri would get £9.60 over three weeks, which is more than Shu.**

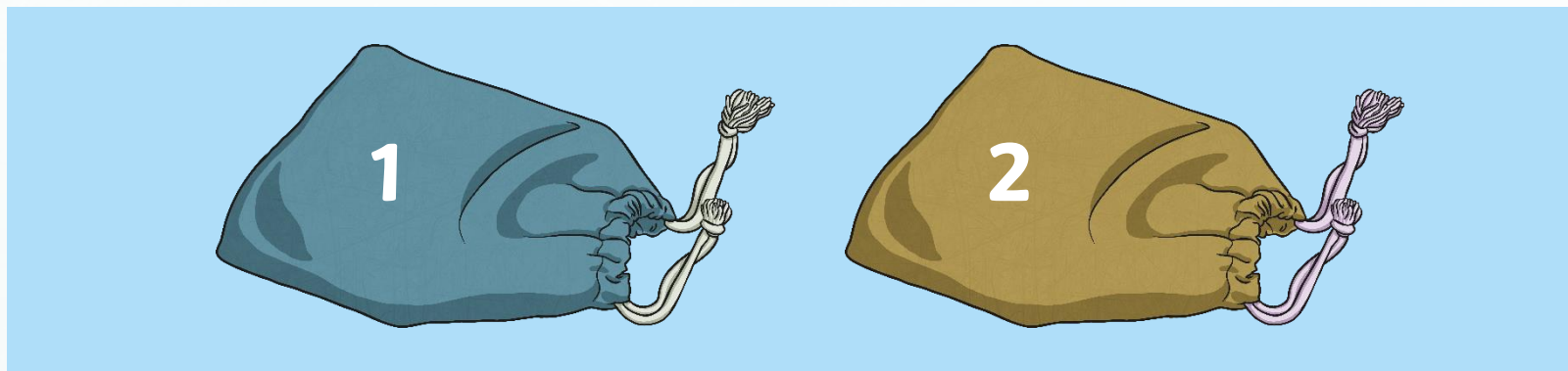
Extension task



Ratio and Proportion Problems

Deepest

There are two bags of marbles.



In the first bag, for every 3 red marbles there are 5 green marbles.

In the second bag, for every 2 red marbles there are 4 green marbles.

There are the same number of marbles in each bag.

The second bag of marbles contains 8 red marbles.

How many green marbles are in the first bag?

There are 15 green marbles.

