




Add fractions

1 Complete the additions.

Use the bar models to help you.

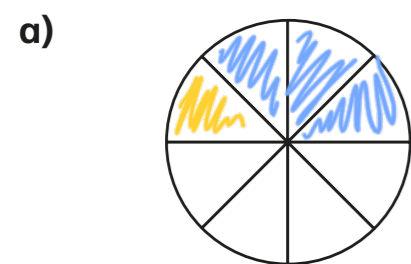
a)  $\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$

b)  $\frac{1}{5} + \frac{1}{5} = \frac{2}{5}$

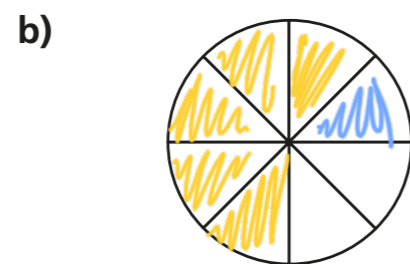
c)  $\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$

d)  $\frac{1}{5} + \frac{3}{5} = \frac{4}{5}$

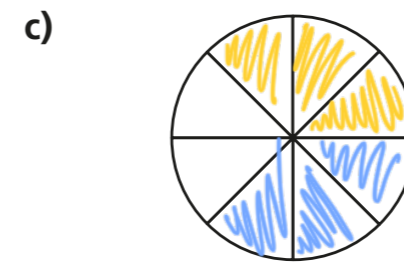
2 Shade the circles and complete the additions.



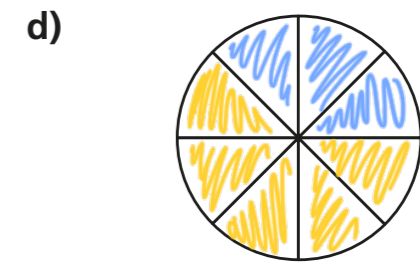
$$\frac{1}{8} + \frac{3}{8} = \frac{4}{8}$$



$$\frac{5}{8} + \frac{1}{8} = \frac{6}{8}$$

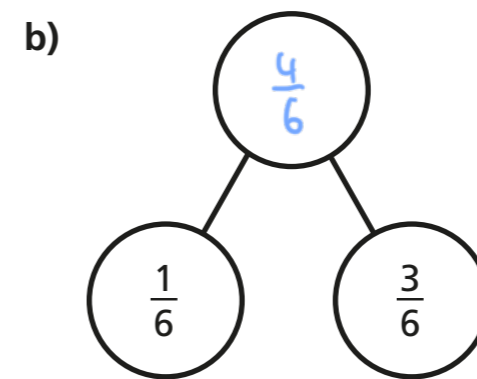
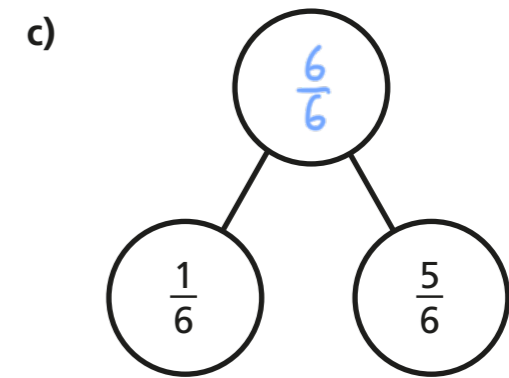
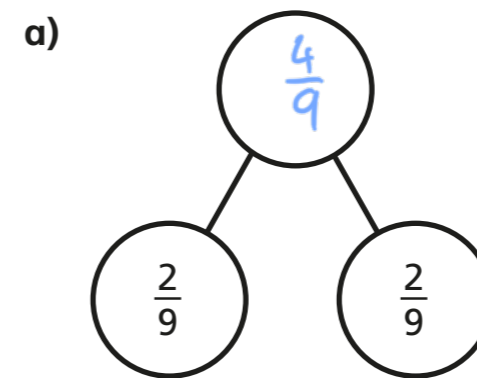


$$\frac{3}{8} + \frac{3}{8} = \frac{6}{8}$$



$$\frac{5}{8} + \frac{3}{8} = \frac{8}{8}$$

3 Complete the part-whole models.



Which part-whole model is the odd one out? various

Talk about your choice with a partner. Did they choose the same odd one out?



- 4 Alex and Huan are eating a cake.

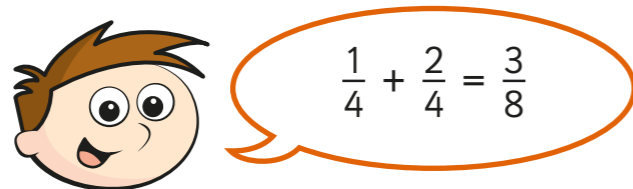
Alex eats $\frac{4}{7}$ of the cake.

Huan eats $\frac{2}{7}$ of the cake.

What fraction of the cake have they eaten altogether?

They have eaten $\frac{6}{7}$ of the cake altogether.

- 5 Teddy is adding fractions.



- a) Draw a bar model to show that Teddy is wrong.



$$\frac{1}{4} + \frac{2}{4} = \frac{3}{4} \quad \text{not } \frac{3}{8}$$

- b) Complete the addition $\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$

- 6 Annie has baked 12 muffins.



She puts them into 2 boxes.

What fraction of the muffins could she put in each box?

Complete the table to show four possibilities.

One has been done for you.

Box 1	Box 2
$\frac{1}{12}$	$\frac{11}{12}$
$\frac{2}{12}$	$\frac{10}{12}$
$\frac{3}{12}$	$\frac{9}{12}$
$\frac{4}{12}$	$\frac{8}{12}$
$\frac{5}{12}$	$\frac{7}{12}$
$\frac{6}{12}$	$\frac{6}{12}$

Are there any other possibilities? Talk about it with a partner.

- 7 Complete the additions.

a) $\frac{3}{8} + \frac{4}{8} = \frac{7}{8}$

d) $\frac{3}{103} + \frac{4}{103} = \frac{7}{103}$

b) $\frac{3}{9} + \frac{4}{9} = \frac{7}{9}$

e) $\frac{5}{31} + \frac{9}{31} = \frac{14}{31}$


c) $\frac{3}{29} + \frac{4}{29} = \frac{7}{29}$


f) $\frac{17}{111} + \frac{33}{111} = \frac{50}{111}$


Subtract fractions


1 Complete the subtractions.

Use the bar models to help you.

a)  $\frac{2}{3} - \frac{1}{3} = \frac{1}{3}$

b)  $\frac{2}{5} - \frac{1}{5} = \frac{1}{5}$

c)  $\frac{3}{5} - \frac{1}{5} = \frac{2}{5}$

d)  $\frac{4}{5} - \frac{1}{5} = \frac{3}{5}$

2 Jack has $\frac{7}{8}$ of a chocolate bar.

He eats $\frac{4}{8}$ of the chocolate bar.

What fraction of the chocolate bar does he have left?

Jack has $\frac{3}{8}$ of the chocolate bar left.



3 Complete the subtractions.

Simplify your answers where possible.

a) $\frac{7}{10} - \frac{1}{10} = \frac{6}{10} = \frac{3}{5}$

e) $\frac{8}{12} - \frac{4}{12} = \frac{4}{12} = \frac{1}{3}$

b) $\frac{7}{10} - \frac{2}{10} = \frac{5}{10} = \frac{1}{2}$

f) $\frac{9}{12} - \frac{5}{12} = \frac{4}{12} = \frac{1}{3}$

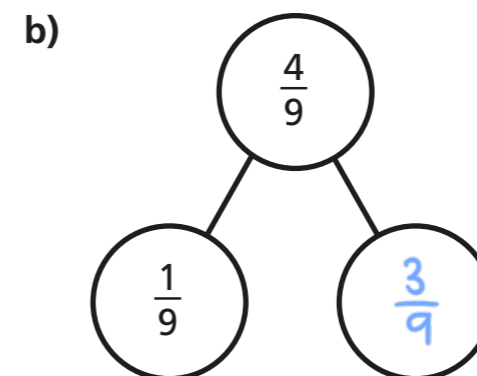
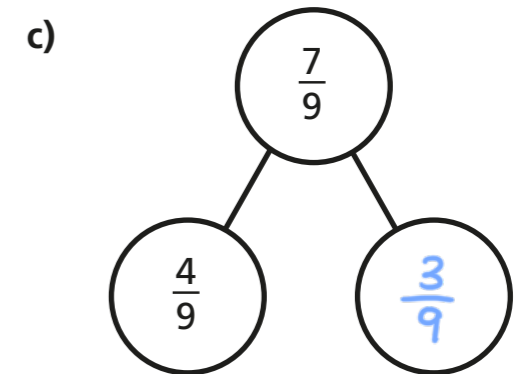
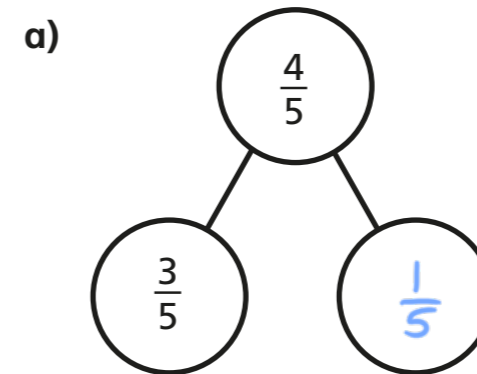
c) $\frac{7}{10} - \frac{3}{10} = \frac{4}{10} = \frac{2}{5}$

g) $\frac{9}{59} - \frac{5}{59} = \frac{4}{59}$

d) $\frac{7}{12} - \frac{3}{12} = \frac{4}{12} = \frac{1}{3}$

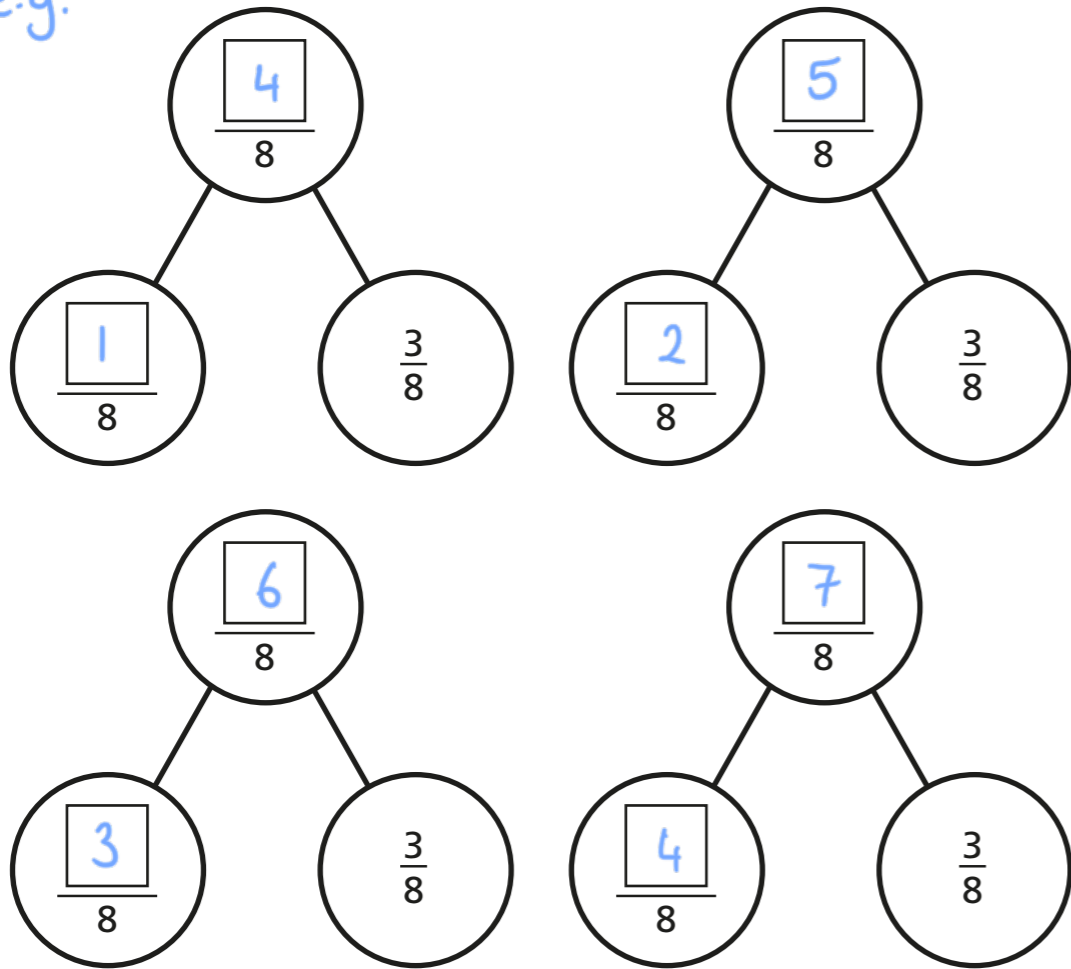
h) $\frac{13}{127} - \frac{9}{127} = \frac{4}{127}$

4 Complete the part-whole models.



5 Complete the part-whole model in four different ways.

e.g.



6 Kim has read $\frac{6}{7}$ of her book.

Tom has read $\frac{2}{7}$ of his book.

a) Shade the bar models to represent this information.



b) How much more has Kim read than Tom?

Kim has read $\frac{4}{7}$ more of her book than Tom.

7 Write the missing numerators.

a) $\frac{8}{9} - \frac{\square}{9} = \frac{7}{9}$

e) $\frac{7}{10} - \frac{5}{10} = \frac{1}{10} + \frac{\square}{10}$

b) $\frac{5}{11} - \frac{\square}{11} = \frac{4}{11}$

f) $\frac{\square}{4} - \frac{1}{4} = \frac{1}{4} + \frac{1}{4}$

c) $\frac{8}{9} - \frac{\square}{9} = \frac{3}{9} + \frac{4}{9}$

g) $\frac{\square}{5} - \frac{2}{5} = \frac{1}{5} + \frac{2}{5}$

d) $\frac{7}{9} - \frac{5}{9} = \frac{\square}{9} - \frac{4}{9}$

h) $\frac{4}{5} + \frac{1}{5} = \frac{3}{7} - \frac{2}{7} + \frac{\square}{7}$

8 Complete the table to show three possible values of the square and triangle.

$\frac{\square}{92} - \frac{\square}{92} = \frac{13}{92}$

e.g.

14	1
20	7
30	17

How many other answers can you find?



Problem Solving



Your turn



1 The jug is $\frac{4}{7}$ full.



It needs 72 ml more to be full.

How much water can the jug hold in total?
168 ml

2 A box is full of spheres and cubes.

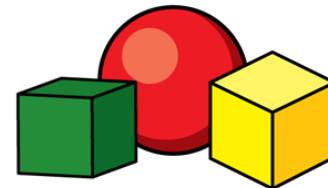
$\frac{5}{6}$ of the shapes are cubes.

$\frac{3}{4}$ of the cubes are yellow.

There are 60 yellow cubes in the box.

How many shapes are there in total?

96 shapes



Modelled solutions are on the video

Problem Solving



Your turn



3 Complete the calculations.

$$\text{Yellow Circle} - \text{Green Triangle} = 11$$

$$\text{Yellow Circle} + \text{Yellow Circle} + \text{Yellow Circle} + \text{Yellow Circle} = 96$$

$$\text{Red Square} + \text{Yellow Circle} + \text{Green Triangle} = 40$$

$$\text{Green Triangle} + \text{Red Square} = 16$$

4 An apple and banana cost the same as two pears.

Three pears cost £1.20

A pear costs 12p more than an apple.

What is the cost of a banana?

52p

Modelled solutions are on the video

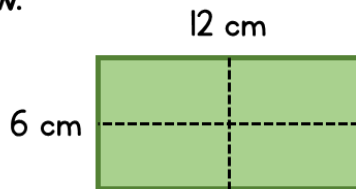
Problem Solving



Your turn

1 A rectangle has a length of 12 cm and a width of 6 cm.

It is cut in quarters like shown below.



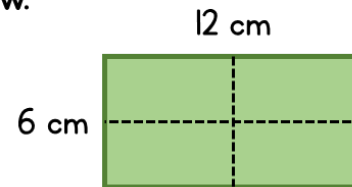
The four parts are put together to make the following shape.



What is the perimeter of the new shape? **48 cm**

2 A rectangle has a length of 12 cm and a width of 6 cm.

It is cut in quarters like shown below.



The four parts are put together to make the following shape.



What other perimeters could be made? **Numerous solutions**

Modelled solutions are on the video

Problem Solving



Your turn



3 There are 81 red, blue and yellow counters in total.

There are 9 more red counters than yellow ones.

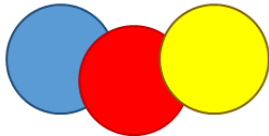
There are the same amount of yellow and blue counters.

How many of each colour are there?

 = 33

 = 24

 = 24




4 There are 81 red, blue and yellow counters in total.

There are 9 more red counters than yellow ones.

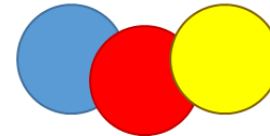
There are the same amount of red and blue counters.

How many of each colour are there?

 = 30

 = 21

 = 30



Modelled solutions are on the video