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This tells you which page you need.

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The first page of a lesson is a maths problem. Don't look at the next page until you have had a go! The third and fourth pages give you practice, so you can check your understanding.



## Adding fractions

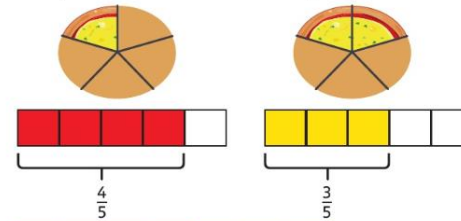
### Discover



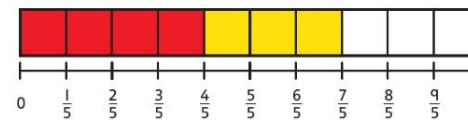
- 1** a) What fraction of pizza have Kate and Luis eaten in total?  
 b) Kate's friends drink  $\frac{7}{10}$  of a litre of juice.  
 Luis's friends drink  $\frac{9}{10}$  of a litre of juice.  
 How much juice do they drink in total?

### Share

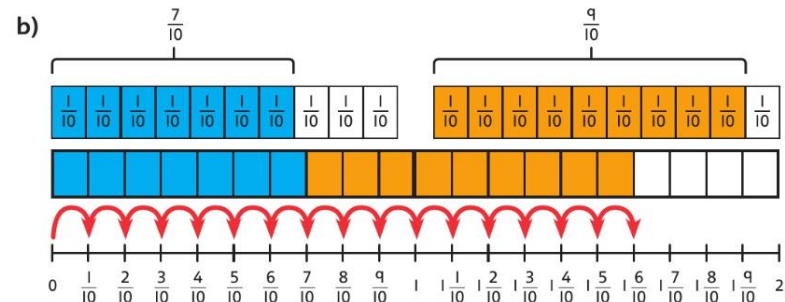
- a) Kate has eaten  $\frac{4}{5}$  of her pizza. Luis has eaten  $\frac{3}{5}$  of his pizza.



I used a fraction strip to represent the pizzas. Then I rearranged the sections on a number line to help me.



Kate and Luis have eaten  $\frac{7}{5}$  in total.



$\frac{7}{10}$  of a litre +  $\frac{9}{10}$  of a litre =  $1\frac{6}{10}$  litres

Kate's and Luis's friends drink  $1\frac{6}{10}$  litres in total.

You can write your answer as a mixed number ( $1\frac{6}{10}$ ) or an improper fraction ( $\frac{16}{10}$ ).

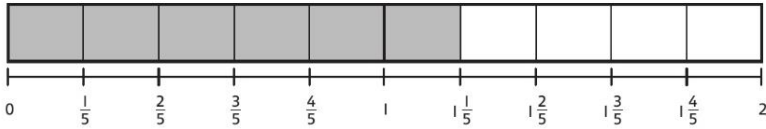


# Lesson 1

## Adding fractions

- 1 Tino the horse eats  $\frac{4}{5}$  of a bale of hay on Monday. He eats  $\frac{2}{5}$  of a bale of hay on Tuesday.

What fraction does Tino eat altogether?

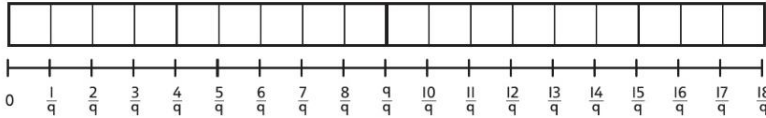


$$\frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$$

Tino eats  $\frac{\square}{\square}$  bales of hay.

- 2 Alexis runs  $\frac{7}{9}$  km, she has a rest and then runs a further  $\frac{5}{9}$  km.

How far does Alexis run in total?



$$\frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$$

Alexis runs  $\frac{\square}{\square}$  km in total.

- 3 Work out the following calculations.

Give your answers as improper fractions.

a)  $\frac{3}{4} + \frac{3}{4} = \frac{\square}{\square}$

d)  $\frac{3}{10} + \frac{1}{10} + \frac{9}{10} = \frac{\square}{\square}$

b)  $\frac{2}{5} + \frac{4}{5} = \frac{\square}{\square}$

e)  $\frac{3}{5} + \frac{3}{5} + \frac{3}{5} = \frac{\square}{\square}$

c)  $\frac{\square}{\square} = \frac{5}{12} + \frac{11}{12}$

f) 8 ninths + 5 ninths =  $\frac{\square}{\square}$

I could draw a fraction strip to help me.



- 4 Match the calculation to the correct answer.

$\frac{6}{7} + \frac{3}{7}$

$\frac{11}{7}$

$\frac{5}{7} + \frac{1}{7} + \frac{6}{7}$

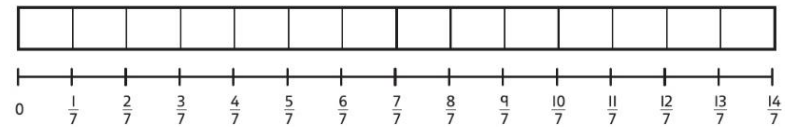
1

$\frac{3}{7} + \frac{4}{7}$

$1\frac{2}{7}$

$\frac{6}{7} + \frac{5}{7}$

$\frac{12}{7}$



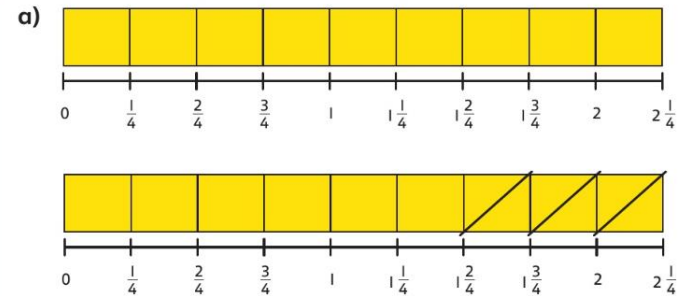
## Subtracting fractions

### Discover



- 1** a) Olivia uses  $\frac{3}{4}$  kg of spaghetti to make a meal.  
How much spaghetti is left?
- b) Does Olivia have enough spaghetti to make the same meal again tomorrow?

### Share

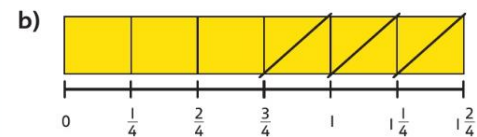


I used a fraction strip to represent the spaghetti and then crossed out  $\frac{3}{4}$  to see what was left.



$$2\frac{1}{4} \text{ kg} - \frac{3}{4} \text{ kg} = 1\frac{2}{4} \text{ kg}$$

There are  $1\frac{2}{4}$  kg of spaghetti left.



$$1\frac{2}{4} \text{ kg} - \frac{3}{4} \text{ kg} = \frac{3}{4} \text{ kg}$$

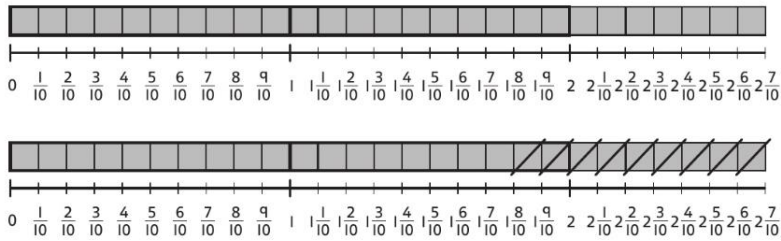
Olivia has enough spaghetti to make the same meal again tomorrow.

## Lesson 2

### Subtracting fractions

- 1 Last week Rusty the dog ate  $2\frac{7}{10}$  kg of dog food. This week he ate  $\frac{9}{10}$  kg less than last week.

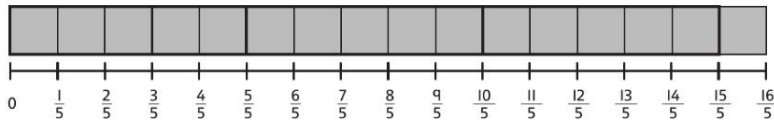
How much dog food did Rusty eat this week?



$$2\frac{7}{10} - \frac{\quad}{\quad} = \frac{\quad}{\quad}$$

Rusty ate  kg this week.

- 2 Cross out part of the fraction strip to help you work out the answer to  $3\frac{1}{5} - \frac{4}{5}$ .

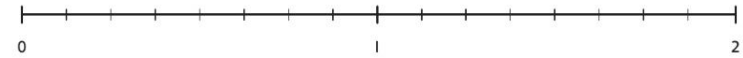


$$3\frac{1}{5} - \frac{4}{5} = \frac{\quad}{\quad}$$

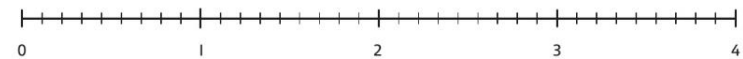
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- 3 Complete each calculation.

a)  $1\frac{7}{8} - \frac{3}{8} = \frac{\quad}{\quad}$



b)  $\frac{\quad}{\quad} = 3\frac{1}{9} - \frac{5}{9}$



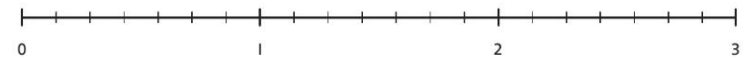
c)  $2\frac{9}{11} - \frac{3}{11} - \frac{9}{11} = \frac{\quad}{\quad}$

I will do the subtractions in a different order to make this easier to work out.



- 4 Millie has  $2\frac{5}{7}$  litres of juice. Each day Millie drinks  $\frac{6}{7}$  of a litre of juice.

- a) How many days will the juice last?



Millie has enough juice for  days.

- b) How much juice is left over?

There is  of a litre of juice left over.

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## Calculating fractions of a quantity

### Discover



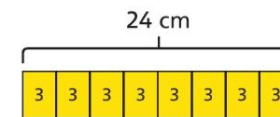
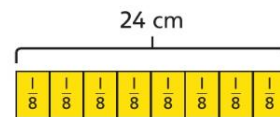
- 1 a) The smallest doll is  $\frac{1}{8}$  of the height of the largest doll.  
How tall is the smallest doll?
- b) The middle doll is  $\frac{3}{8}$  of the height of the largest doll.  
How tall is the middle doll?

### Share

- a) The largest doll is 24 cm tall.

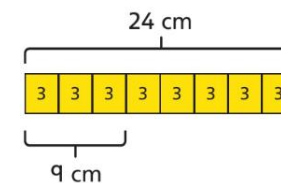


I will split my fraction strip into 8 sections because I need to work out  $\frac{1}{8}$ .



? cm  
 $24 \div 8 = 3$ , so the smallest doll is 3 cm tall.

- b)



$24 \div 8 = 3$ , so  $\frac{1}{8} = 3$  cm  
 $3 \times 3$  cm = 9 cm, so  $\frac{3}{8} = 9$  cm  
 The middle doll is 9 cm tall.

If I know  $\frac{1}{8}$  is 3 cm, I can multiply this by 3 to find  $\frac{3}{8}$ .

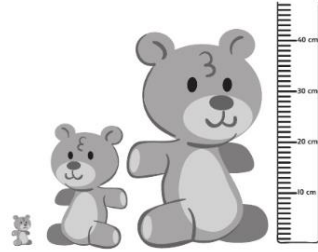


## Lesson 3

### Calculating fractions of a quantity

- 1 Emily has three different-sized teddy bears – a small teddy bear, a medium teddy bear and a large teddy bear.

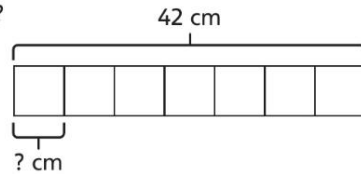
The large teddy bear is 42 cm tall.



- a) The small teddy bear is  $\frac{1}{7}$  the height of the large teddy bear.

How tall is the small teddy bear?

$$\square \div \square = \square$$



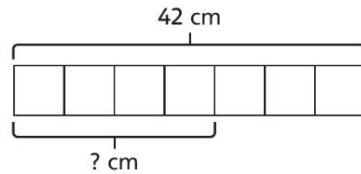
The small teddy bear is  $\square$  cm tall.

- b) The medium teddy bear is  $\frac{4}{7}$  the height of the large teddy bear.

How tall is the medium teddy bear?

$$\square \div \square = \square$$

$$\square \times \square = \square$$



The medium teddy bear is  $\square$  cm tall.

- 2 Complete each question.

a)  $\frac{1}{3}$  of 30 m =  $\square$  m

b)  $\frac{2}{3}$  of 27 kg =  $\square$  kg

c)  $\frac{5}{6}$  of £18 = £  $\square$

- 3 Is this statement true or false?

$$\frac{3}{8} \text{ of } 24 = \frac{1}{4} \text{ of } 36$$

Show your working out and circle your answer.

- 4 Match each calculation to the correct answer.

$\frac{2}{3}$  of 18 15

$\frac{1}{4}$  of 18 7

$\frac{5}{6}$  of 18 2

$\frac{7}{18}$  of 18 12

## Solving problems – fraction of a quantity

### Discover



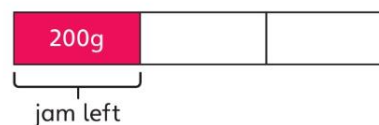
- 1 a) There are 200 g of jam left in the jar.  
How many grams of jam are in the jar when it is full?
- b) Reena eats 60 g of cheese.  
 $\frac{3}{5}$  of the block of cheese is left.  
How many grams of cheese are left?

### Share

- a) There are 200 g of jam left in the jar.



I think there are 3 lots of this amount in a full jar.



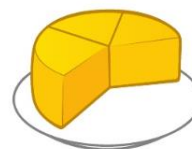
$$200 \text{ g} \times 3 = 600 \text{ g}$$

There are 600 g of jam in the jar when it is full.

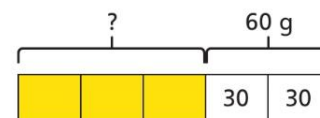


- b)  $\frac{3}{5}$  of the block of cheese is left.

This means that Reena has eaten  $\frac{2}{5}$  of the block.



I know that 2 parts represent 60 g of cheese.



$$60 \div 2 = 30$$

$$30 \times 3 = 90$$

There are 90 g of cheese left.



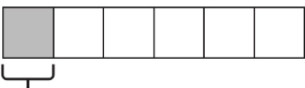


## Lesson 4

### Solving problems – fraction of a quantity

- 1 a) Amelia has completed  $\frac{1}{6}$  of her maths homework.  
How many questions in total does Amelia need to complete?

I have answered 3 questions so far.



3 questions

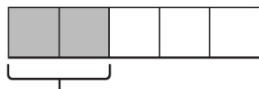
×  =

Amelia has to complete  questions in total.

Amelia

- b) Amelia has learnt  $\frac{2}{5}$  of her spellings homework.  
How many spellings does she have to learn in total?

I have learnt 12 spellings so far.



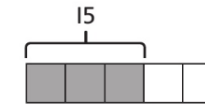
12 spellings

$12 \div \text{} = \text{}$        $\text{} \times \text{} = \text{}$

Amelia has to learn  spellings in total.

Amelia

- 2 a)  $\frac{3}{5}$  of a number is 15.  
What is the number?  
The number is .
- b)  $\frac{4}{9}$  of a number is 48.  
What is the number?  
The number is .



- 3 A box contains some buttons.  
 $\frac{1}{5}$  of the buttons are taken out.  
There are 24 buttons left.  
How many buttons were there at the start?  
There were  buttons at the start.





- 4 Ethan has some money.  
He gives  $\frac{5}{7}$  of the money to his friend.  
He has £12 left.  
How much money does he give to his friend?  
Ethan gives £  to his friend.



