Monday 9th November

Simplifying fractions 1

Discover

1 **a)** Bella gets 2 cows into the pen before the time runs out.

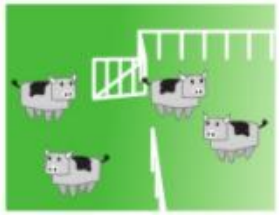
What is her score? Give your answer as a fraction in its simplest form.

b) Lee gets 9 of the 12 sheep into the pen.

What is his score? Give your answer as a fraction in its simplest form.

Share

a)



To find a fraction's simplest form we divide the numerator and the denominator by a **common factor**.

Bella's score is 2 out of 4.

We can write this fraction as $\frac{2}{4}$.

$\frac{2}{4} = \frac{1}{2}$ (÷ 2)

$\frac{2}{4}$ can be simplified to $\frac{1}{2}$. Bella's score is $\frac{1}{2}$.

I divided the numerator and denominator by 2 because 2 is a common factor of 2 and 4.

b) Lee gets $\frac{9}{12}$ of the sheep in the pen.

We can divide the numerator and the denominator by 3 because 3 is a common factor of 9 and 12.

$\frac{9}{12} = \frac{3}{4}$ (÷ 3)

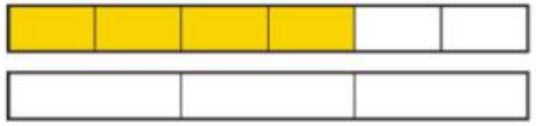
Lee's score is $\frac{3}{4}$.

These fractions represent the same amount, but one is written in its simplest form.

Think together

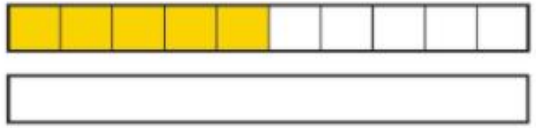
1 Bella and Lee play some more rounds of the game. What scores do they get? Use the diagrams to help you simplify the fractions.

a) Bella gets 4 out of 6 sheep in the pen.



$\frac{4}{6} = \frac{\square}{3}$ (÷ 2)

b) Lee gets 5 out of 10 cows in the pen.



$\frac{5}{10} = \frac{\square}{\square}$ (÷ $\square$, ÷ 5)

c) Bella gets 9 out of 15 geese in the pen.

$\frac{9}{15} = \frac{\square}{\square}$ (÷ $\square$, ÷ $\square$)

2 Simplify these fractions.

a) $\frac{6}{8}$ **b)** $\frac{10}{100}$ **c)** $\frac{7}{7}$

3 **a)** Use your knowledge of equivalent fractions to find the missing numbers.

CHALLENGE

$\frac{5}{6} = \frac{10}{\square}$ (× 2, × 2) $\qquad \frac{3}{10} = \frac{15}{\square}$

b) Fill in the missing numbers to make the simplified fractions correct.

$\frac{15+5}{29+6} = \frac{\square}{\square}$ $\qquad \frac{\square+19}{30} = \frac{5}{6}$

$\frac{25-\square}{28} = \frac{3}{4}$ $\qquad \frac{\square+15}{20} = \frac{4}{\square}$

Tuesday 10th November

Simplifying fractions 2

Discover

1 a) What fraction of the people are children?

Simplify your answer.

b) How many roller coaster carriages are full?

Simplify your answer.

Share

a) 12 children: factors of 12 are 1, 2, 3, 4, 6 and 12

18 people: factors of 18 are 1, 2, 3, 6, 9, 18

The **highest common factor** of 12 and 18 is 6. This is the highest number that divides into both 12 and 18.

Divide the numerator and denominator by 6.

$\div 6$: $\frac{12}{18} = \frac{2}{3}$ $\div 6$

I did it a different way. I know that 12 and 18 can both be divided by 2 so I started by doing that. I then noticed I could divide the answer by 3.

Divide the numerator and denominator by 2.

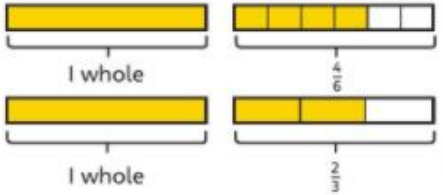
$\div 2$: $\frac{12}{18} = \frac{6}{9}$ $\div 2$

$\div 3$: $\frac{6}{9} = \frac{2}{3}$ $\div 3$

6 and 9 have a common factor of 3.
Divide the numerator and denominator by 3.

$\frac{2}{3}$ of the people are children.

b)



We know we have simplified fully when we cannot divide the numerator and denominator by any other number apart from 1.

1 carriage is full and the other is $\frac{4}{6}$ full.

To simplify $1\frac{4}{6}$ we keep the whole number the same and simplify the fraction.

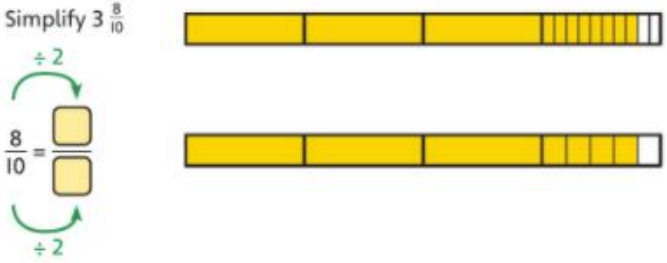
$1\frac{4}{6}$ simplifies to $1\frac{2}{3}$.

$1\frac{2}{3}$ roller coaster carriages are full.

Think together

1 **a)** Olivia wants to go on the ghost train. Three of the carriages are full. In the remaining carriage, 8 out of 10 seats are taken.

Simplify $3\frac{8}{10}$



So $3\frac{8}{10} = \square\frac{\square}{\square}$

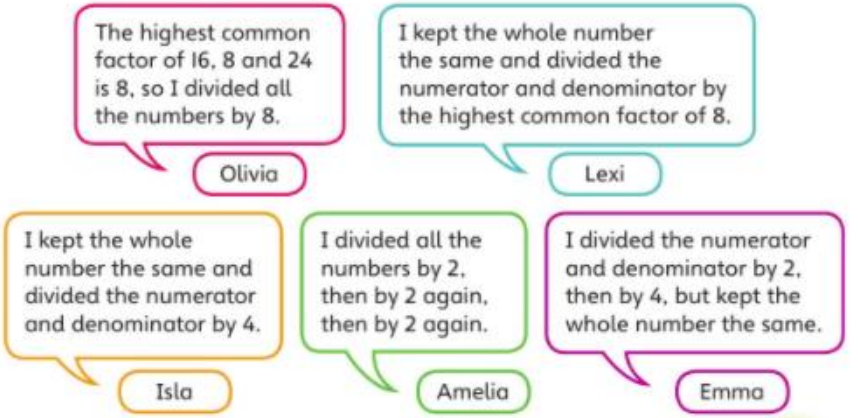
b) When she gets off the train after her ride, she counts 25 people waiting. Each carriage has 10 seats.

How many carriages will be full? Simplify your answer.

$\frac{25}{10} = \square\frac{\square}{10} = \square\frac{\square}{\square}$

2 Some children are trying to fully simplify $16\frac{8}{24}$.

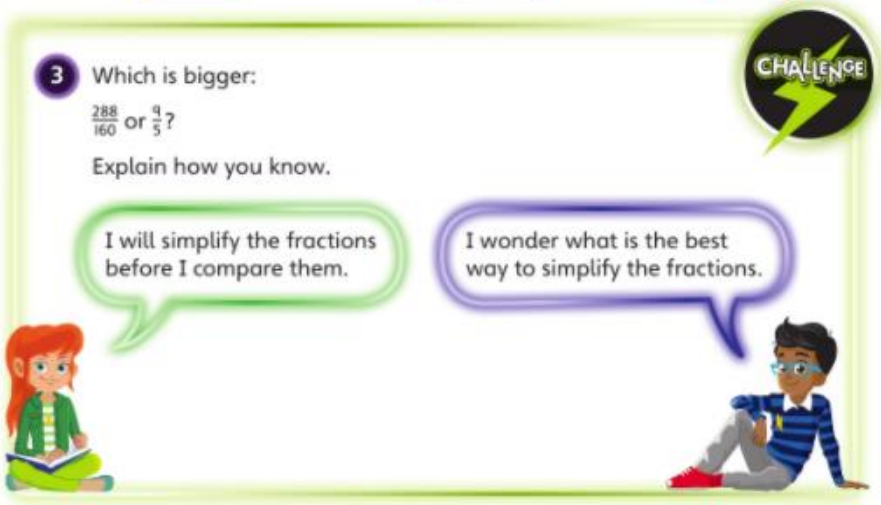
They all use a different method. Which children have used correct methods? Explain how you know.



3 Which is bigger:

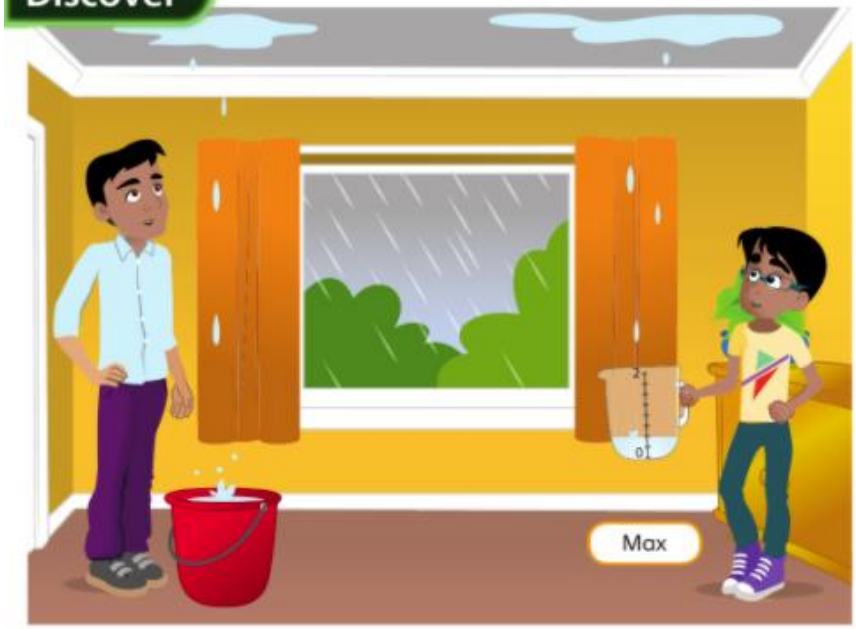
$\frac{288}{160}$ or $\frac{9}{5}$?

Explain how you know.



Fractions on a number line

Discover



1 **a)** The ceiling on Max's side of the room drips $\frac{1}{4}$ litre of water every hour.

Max has already collected $\frac{1}{2}$ a litre of water in his jug.

How many litres of water will be in his jug after another 3 hours?

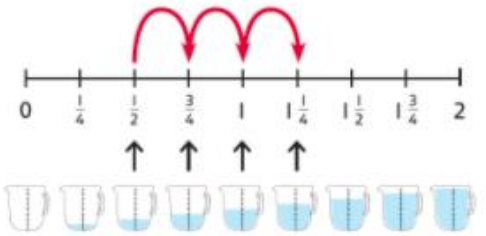
b) Max collects $5\frac{3}{4}$ litres of water in total. His dad collects $5\frac{4}{5}$ litres of water in total.

Use a number line to show who collected the most water.

Share

a) Max's jug contains $\frac{1}{2}$ litre of water to start with.

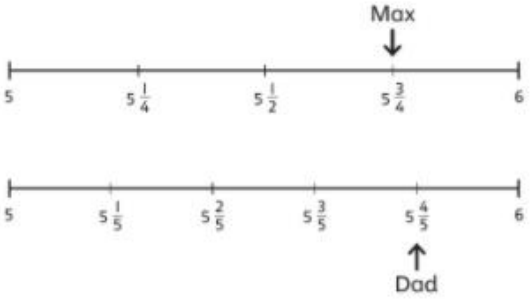
Starting from $\frac{1}{2}$ we can count up in quarters ($\frac{1}{4}$).



There will be $1\frac{1}{4}$ litres of water in Max's jug after another 3 hours.

b) Both amounts of water lie between 5 and 6.

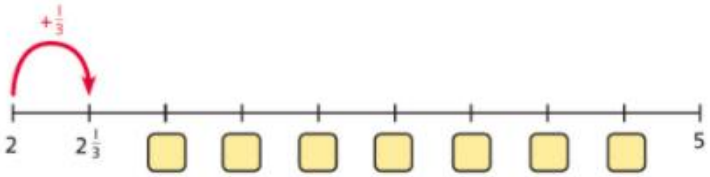
We can compare number lines divided into quarters and fifths.



$5\frac{4}{5}$ is bigger than $5\frac{3}{4}$ so Max's dad collected the most water.

Think together

1 Danny is running a bath. There are 2 litres of water in the bath already. It fills up at a rate of $\frac{1}{3}$ litre each second. How many litres are in the bath after 8 seconds?



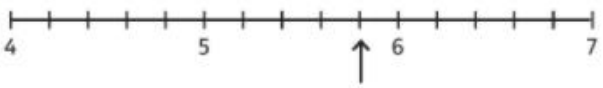
There are ☐ ☐/☐ litres of water in the bath after 8 seconds.

2 **a)** What numbers are missing from the number line?

b) What numbers are missing from the number line?

c) Danny is counting up from 1 to 3 in jumps of $\frac{2}{6}$. Complete the jumps and fill in the missing numbers.

3



a) What number is the arrow pointing to?

b) What is $\frac{2}{5}$ **more** than the number the arrow is pointing to?

c) What is $\frac{1}{5}$ **less** than the number the arrow is pointing to?

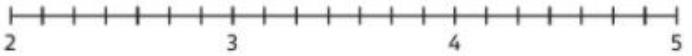
d) What is 1 more than the number the arrow is pointing to?

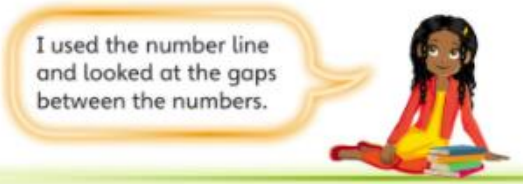
4 **a)** Find where these numbers should go on the number line.

$2\frac{3}{10}$ $2\frac{1}{2}$ $2\frac{9}{10}$

b) This sequence goes up by the same amount each time. Use the number line to help you work out the missing fractions.

☐, $3\frac{1}{7}$, ☐, ☐, $4\frac{3}{7}$, ☐





Thursday 12th November

Comparing and ordering fractions 1

Discover

Group A

Group B

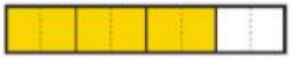
1 a) Which group has a bigger fraction of people wearing glasses?

b) Some more people are in Group C. $\frac{2}{3}$ of the people in Group C are wearing glasses.

Which group now has the biggest fraction of people wearing glasses?

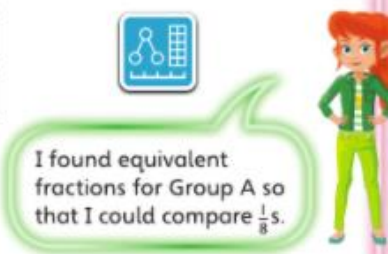
Share

a) We need to compare $\frac{3}{4}$ and $\frac{5}{8}$.

Group A 

Group B 

$\frac{3}{4}$ is equivalent to $\frac{6}{8}$. $\frac{3}{4} \overset{\times 2}{=} \frac{6}{8}$



$\frac{6}{8}$ is greater than $\frac{5}{8}$ so $\frac{3}{4}$ is greater than $\frac{5}{8}$.

Group A has a bigger fraction of people wearing glasses.

b) Now we need to compare $\frac{3}{4}$ and $\frac{2}{3}$.

Group A 

Group C 

Multiples of 4 are 4, 8, 12.

Multiples of 3 are 3, 6, 9, 12.

The lowest common multiple of 4 and 3 is 12 so we can find equivalent fractions with a denominator of 12.

$\frac{3}{4} \overset{\times 3}{=} \frac{9}{12}$ $\quad \frac{2}{3} \overset{\times 4}{=} \frac{8}{12}$

$\frac{9}{12} > \frac{8}{12}$ so $\frac{3}{4} > \frac{2}{3}$

Group A has the biggest fraction of people wearing glasses.

Think together

1 a) $\frac{5}{6}$ of Class A have brown hair. $\frac{2}{3}$ of Class B have brown hair. Which class has a bigger fraction of children with brown hair?

Class A 

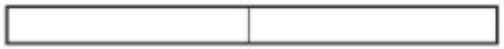
Class B 

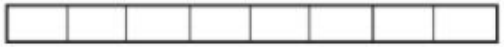
The LCM of 6 and 3 is ☐. $\frac{2}{3} = \frac{\square}{6}$ $\frac{5}{6} \bigcirc \frac{\square}{6}$ so $\frac{5}{6} \bigcirc \frac{2}{3}$.

Class ☐ has a bigger fraction of children with brown hair.

b) $\frac{1}{2}$ of Class A has a pet. $\frac{3}{8}$ of Class B have a pet.

Which class has a bigger fraction of children with a pet?

Class A 

Class B 

The LCM of 2 and 8 is ☐. $\frac{1}{2} = \frac{\square}{\square}$ $\frac{1}{2} \bigcirc \frac{3}{8}$

Class ☐ has a bigger fraction of children with a pet.

c) $\frac{3}{5}$ of Class A are girls. $\frac{2}{3}$ of Class B are girls.

Which class has a bigger fraction of girls?

The LCM of 5 and 3 is ☐.

$\frac{3}{5} = \frac{\square}{\square}$ $\frac{2}{3} = \frac{\square}{\square}$ $\frac{3}{5} \bigcirc \frac{2}{3}$

Class ☐ has a bigger fraction of girls.

2 Put each of these sets of fractions in order from smallest to biggest.

a) $\frac{2}{3}, \frac{1}{2}, \frac{5}{6}$

b) $\frac{1}{2}, \frac{5}{12}, \frac{5}{6}, \frac{3}{4}$

c) $\frac{4}{5}, \frac{3}{10}, \frac{49}{50}, \frac{4}{4}, \frac{99}{100}$

I need to find the lowest common multiple of more than two numbers here. This will be the denominator that I need to use in order to compare.

3 Fill in the missing digits to make the statements correct.

CHALLENGE

a) $\frac{\square}{6}$ is bigger than $\frac{2}{3}$

b) $\frac{2}{5}$ is smaller than $\frac{\square}{15}$

c) $\frac{1}{3} > \frac{\square}{4}$

d) $\frac{\square}{5} > \frac{1}{2} > \frac{\square}{10}$

e) $\frac{3}{8} < \frac{\square}{6}$

f) $\frac{3}{\square} < \frac{\square}{3}$

I think some statements may have more than one answer.

I can use a fraction wall or fraction strips to help me.

Friday 13th November

Comparing and ordering fractions 2

Discover

1 **a)** Does Bella's cat eat more than Jamie's cat each day?

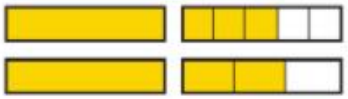
b) Ebo's cat eats $\frac{11}{7}$ pouches of cat food each day.

Does Ebo's cat eat more than Bella's cat?

Share

a) Bella's cat

Jamie's cat



I need to compare $1\frac{3}{5}$ and $1\frac{2}{3}$. I think I only need to compare the fractions.

To compare $\frac{3}{5}$ and $\frac{2}{3}$ I need to find the **lowest common denominator**.

Multiples of 5 are 5, 10, (15).

Multiples of 3 are 3, 6, 9, 12, (15).

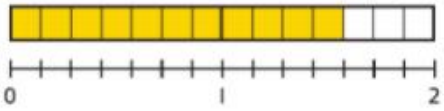
The lowest common denominator is 15.

$\frac{3}{5} = \frac{9}{15}$ (×3) $\frac{2}{3} = \frac{10}{15}$ (×5)

$\frac{9}{15} < \frac{10}{15}$ so $\frac{3}{5} < \frac{2}{3}$

$1\frac{3}{5}$ is less than $1\frac{2}{3}$ so Bella's cat does not eat more than Jamie's cat each day.

b) We need to compare $1\frac{3}{5}$ and $\frac{11}{7}$.



I converted $\frac{11}{7}$ to $1\frac{4}{7}$ so they are easier to compare.

The whole numbers are the same so we only need to compare $\frac{3}{5}$ and $\frac{4}{7}$.

The lowest common denominator is 35.

$\frac{3}{5} = \frac{21}{35}$ (×7) $\frac{4}{7} = \frac{20}{35}$ (×5)

$\frac{21}{35} > \frac{20}{35}$ so $\frac{3}{5} > \frac{4}{7}$ so $1\frac{3}{5} > 1\frac{4}{7}$

$\frac{11}{7} < 1\frac{3}{5}$ so Ebo's cat does not eat more than Bella's cat.

Think together

1 **a)** Lexi's hamster eats $2\frac{3}{4}$ bowls of food each week. Her gerbil eats $2\frac{7}{12}$ bowls of food each week. Which animal eats more each week?

hamster 

gerbil 

$\frac{3}{4} = \frac{\square}{12}$

So $2\frac{3}{4} = 2\frac{\square}{12}$

$2\frac{3}{4} \bigcirc 2\frac{7}{12}$

Lexi's _____ eats more each week.

b) There are 8 carrots in a bag. Roxy the horse eats 27 carrots per week.

How many bags of carrots does she eat per week?

$\frac{\square}{8} = \square\frac{\square}{8}$

Roxy eats $\square\frac{\square}{\square}$ bags of carrots per week.

c) Mai the horse eats $3\frac{1}{2}$ bags of carrots per week.

Which horse eats more carrots per week?

$3\frac{1}{2} = 3\frac{\square}{8}$ $\quad \square\frac{\square}{8} \bigcirc 3\frac{\square}{8}$

_____ eats more carrots per week.

2 Max has four fraction cards.

$5\frac{2}{7}$ $\quad 5\frac{10}{21}$ $\quad 5\frac{6}{14}$ $\quad \frac{36}{7}$

Which fraction is the biggest?

Put the fractions in ascending order.

3 Jamilla has some fraction cards.

She selects the following fraction card. $2\frac{3}{5}$

Which fraction cards are bigger than Jamilla's?

$1\frac{7}{10}$ $\quad \frac{17}{10}$ $\quad 4\frac{1}{8}$ $\quad 2\frac{11}{20}$

$\frac{21}{4}$ $\quad \frac{189}{724}$ $\quad 2\frac{2}{3}$ $\quad 2\frac{\square}{20}$

CHALLENGE

Monday 16th November

Adding and subtracting fractions 1

Discover

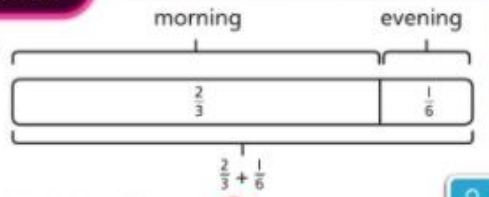
1 **a)** What fraction of a bale of hay does Hattie eat in a day?

b) Molly eats $\frac{1}{4}$ of a bale of hay less than Hattie per day.

What fraction of a bale of hay does Molly eat in a day?

Share

a)



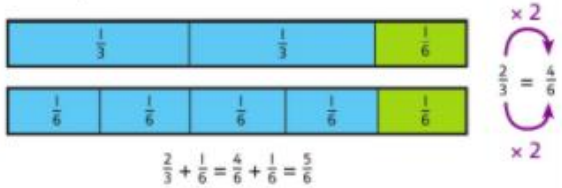
When adding or subtracting fractions, we need to find a common denominator.

Multiples of 3 are 3, (6).

A multiple of 6 is (6).

The lowest common multiple of 3 and 6 is 6.

I will find an equivalent fraction with a denominator of 6.



Hattie eats $\frac{5}{6}$ of a bale of hay in a day.

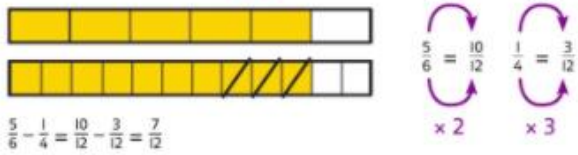
b) Molly eats $\frac{1}{4}$ of a bale less than Hattie.

Use the LCM of 6 and 4 to find a common denominator.

Multiples of 6 are 6, (12)

Multiples of 4 are 4, 8, (12) The LCM is 12.

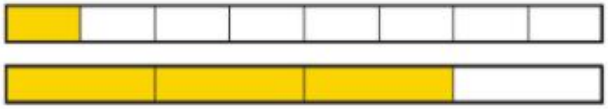
I need to subtract.



Molly eats $\frac{7}{12}$ of a bale of hay in a day.

Think together

1 **a)** Hector eats $\frac{1}{8}$ of a bale of hay in the morning and $\frac{3}{4}$ of a bale of hay in the evening. How much hay does he eat in a day?



The LCM of 8 and 4 is ☐. So $\frac{3}{4} = \frac{\square}{8}$

$\frac{1}{8} + \frac{\square}{\square} = \frac{\square}{\square}$

Hector eats ☐ of a bale of hay in a day.

b) Callie eats $\frac{2}{3}$ of a bale of hay. Scoobie eats $\frac{5}{9}$ less. How much does Scoobie eat?

The LCM of 3 and 9 is ☐. $\frac{2}{3} = \frac{\square}{\square}$

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

Scoobie eats ☐ of a bale of hay.

2 Work out $\frac{1}{6} + \frac{3}{8}$.

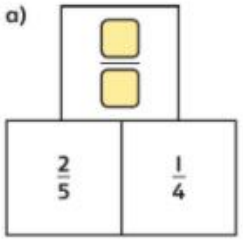
The LCM of 6 and 8 is ☐.

$\frac{1}{6} = \frac{\square}{\square}$ $\frac{3}{8} = \frac{\square}{\square}$ $\frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$

3 Complete the following addition pyramids.

CHALLENGE

a)



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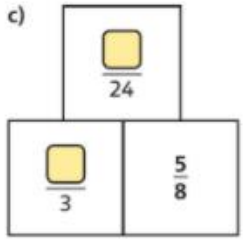
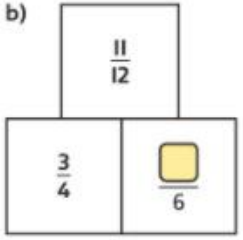
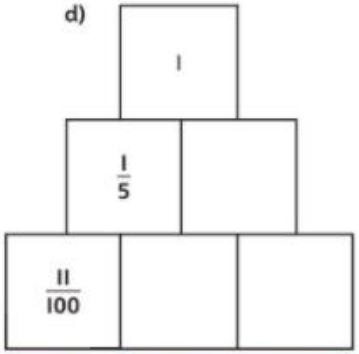


b)



d)



I think I might need to subtract to find some of the missing fractions.

I think it would help to think about common denominators.

Tuesday 17th November

Adding and subtracting fractions 2

Discover

1 **a)** On Saturday, Amelia cycles $3\frac{2}{5}$ kilometres with her dad.

On Sunday, she cycles $1\frac{1}{3}$ kilometres.

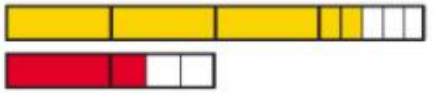
How many kilometres does Amelia cycle in total?

b) How many more kilometres does Amelia cycle on Saturday than on Sunday?

Share

a) Saturday

Sunday



Add the wholes:

$3 + 1 = 4$

Add the parts:

$\frac{2}{5} + \frac{1}{3}$

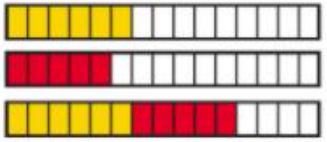
Multiples of 5 are 5, 10, (15)

Multiples of 3 are 3, 6, 9, 12, (15)

The lowest common multiple is 15.

So

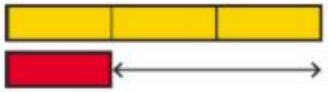
$\frac{2}{5} + \frac{1}{3} = \frac{6}{15} + \frac{5}{15} = \frac{11}{15}$



Amelia cycles $4 + \frac{11}{15} = 4\frac{11}{15}$ in total.

b) We need to subtract to find the difference.

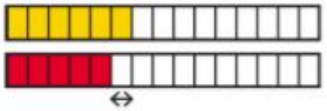
$3\frac{2}{5} - 1\frac{1}{3}$



First subtract the wholes.

$3 - 1 = 2$

Then subtract the parts.



$\frac{2}{5} - \frac{1}{3} = \frac{6}{15} - \frac{5}{15} = \frac{1}{15}$

So Amelia cycles $2\frac{1}{15}$ more km on Saturday than on Sunday.

Think together

1 **a)** Luis walks $2\frac{1}{4}$ kilometres on Saturday and $2\frac{3}{8}$ kilometres on Sunday.

Saturday 

Sunday 

How far does Luis walk in total?

Add the wholes: $2 + 2 = \square$

Add the parts: $\frac{1}{4} = \frac{\square}{8}$ $\frac{1}{4} + \frac{3}{8} = \frac{\square}{\square} + \frac{3}{8} = \frac{\square}{\square}$

$2\frac{1}{4} + 2\frac{3}{8} = \square\frac{\square}{\square}$ so Luis walks $\square\frac{\square}{\square}$ kilometres in total.

b) Jamie swims $5\frac{1}{2}$ lengths of a swimming pool.

Ambika swims $3\frac{2}{5}$ lengths of the swimming pool.

How many more lengths does Jamie swim than Ambika?

$\square - \square = \square$

$\frac{1}{2} = \frac{\square}{\square}$ $\frac{2}{5} = \frac{\square}{\square}$ $\frac{1}{2} - \frac{2}{5} = \frac{\square}{\square} - \frac{\square}{\square} = \frac{\square}{\square}$

$5\frac{1}{2} - 3\frac{2}{5} = \square\frac{\square}{\square} =$ so Jamie swims $\square\frac{\square}{\square}$ more lengths than Ambika.

2 Find the missing values.

a)

?	
$9\frac{1}{6}$	$7\frac{5}{8}$

b)

$4\frac{2}{3}$	
?	$\frac{2}{7}$

3 Richard's dad has a model railway, with a train track $2\frac{3}{4}$ metres long.

He buys a second train track.

This train track is $\frac{3}{5}$ metres shorter than the first one.

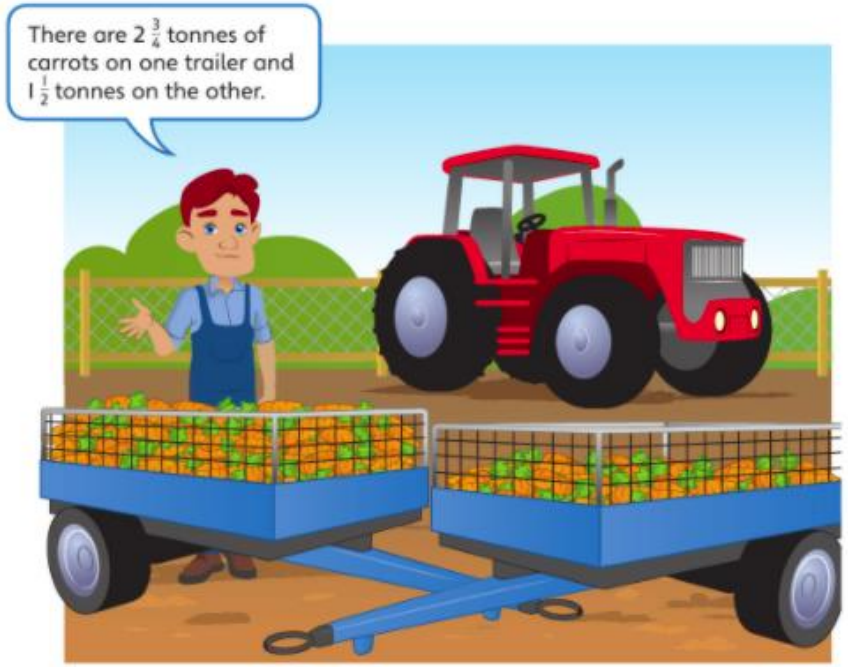
The tracks are put together to make a longer track.

How long is the new train track?

Wednesday 18th November

Adding fractions

Discover



1 **a)** What is the total weight of carrots the farmer has harvested so far?

b) A supermarket orders 5 tonnes of carrots.

The farmer harvests another $\frac{4}{5}$ tonnes of carrots from a different field.

Has the farmer harvested enough carrots to fulfil the order?

Share

a) We need to find $2\frac{3}{4} + 1\frac{1}{2}$.

Method 1

Add the wholes: $2 + 1 = 3$

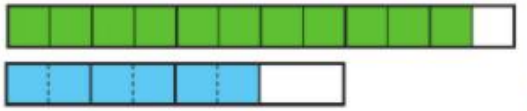
Add the parts : $\frac{3}{4} + \frac{1}{2} = \frac{3}{4} + \frac{2}{4} = \frac{5}{4}$

$\frac{5}{4} = 1\frac{1}{4}$

So $2\frac{3}{4} + 1\frac{1}{2} = 3 + 1\frac{1}{4} = 4\frac{1}{4}$

I made the improper fraction into a mixed number and then put the answers together.

Method 2



$2 = \frac{11}{4}$ $\quad 1\frac{1}{2} = \frac{3}{2} = \frac{6}{4}$

So $2\frac{3}{4} + 1\frac{1}{2} = \frac{11}{4} + \frac{6}{4}$

$= \frac{17}{4} = 4\frac{1}{4}$

The total weight of carrots the farmer has harvested so far is $4\frac{1}{4}$ tonnes.

I changed the mixed numbers to improper fractions first, then added them together.

b) Now we need to add $4\frac{1}{4} + \frac{4}{5}$.

Add the wholes: $4 + 0 = 4$

Add the parts: $\frac{1}{4} + \frac{4}{5} = \frac{5}{20} + \frac{16}{20} = \frac{21}{20} = 1\frac{1}{20}$

So $4\frac{1}{4} + \frac{4}{5} = 4 + 1\frac{1}{20} = 5\frac{1}{20}$.

$5\frac{1}{20}$ tonnes > 5 tonnes so the farmer has harvested enough carrots to fulfil the order.

Think together

1 Calculate $1\frac{2}{3} + 2\frac{1}{2}$.

a) Method 1

Add the wholes: $1 + 2 = \square$

Add the parts: $\frac{2}{3} + \frac{1}{2} = \frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$

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

Add them together: $1\frac{2}{3} + 2\frac{1}{2} = \square + \square\frac{\square}{\square} = \square\frac{\square}{\square}$

b) Method 2

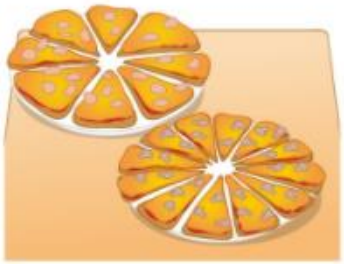
Change to improper fractions: $1\frac{2}{3} = \frac{\square}{\square}$ $2\frac{1}{2} = \frac{\square}{\square}$

Now add the fractions: $\frac{\square}{3} + \frac{\square}{2} = \frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$

Change to a mixed number: $\frac{\square}{\square} = \square\frac{\square}{\square}$

2

chicken



mushroom

At a pizza buffet, 3 whole chicken pizzas and 7 slices were eaten.

Also, 4 whole mushroom pizzas and 5 slices were eaten.

How many pizzas were eaten altogether?

3 Here are some numbers.

CHALLENGE

$7\frac{3}{4}$	$4\frac{2}{3}$	$3\frac{5}{6}$	$6\frac{7}{8}$	$27\frac{17}{24}$

a) Isla adds two of the numbers together.

Her answer is $11\frac{13}{24}$.

Which two numbers did she choose?

b) What method would you use to add $7\frac{3}{4}$ and $27\frac{17}{24}$?

Explain your method.

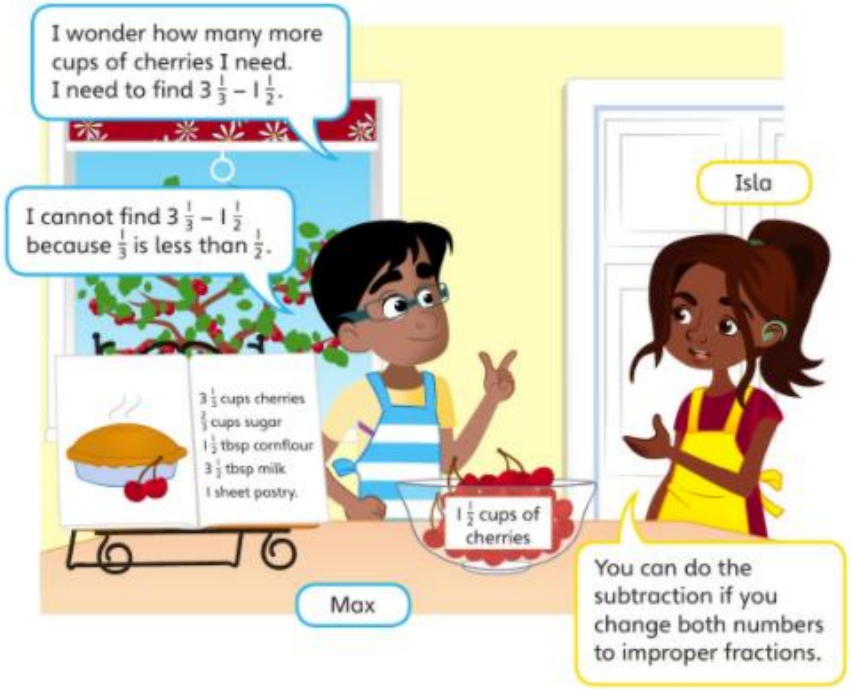
I prefer to convert to improper fractions.

I am not sure what is the best method.

→ Practice book 6A p111

Subtracting fractions

Discover

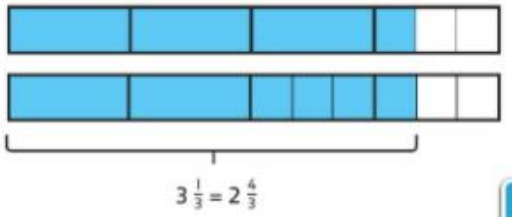


1 a) Is Max correct?

b) Show how Isla's method will give you the answer to $3\frac{1}{3} - 1\frac{1}{2}$.

Share

a)



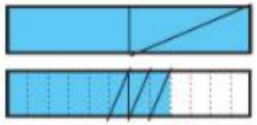
$3\frac{1}{3} = 2\frac{4}{3}$

Subtract the wholes: $2 - 1 = 1$

The lowest common multiple of 2 and 3 is 6.

Subtract the parts: $\frac{4}{3} - \frac{1}{2} = \frac{8}{6} - \frac{3}{6} = \frac{5}{6}$

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



Max is not correct - he can do the subtraction. He needs $1\frac{5}{6}$ more cups of cherries.

I needed to find $3\frac{1}{3} - 1\frac{1}{2}$. I rewrote $3\frac{1}{3}$ as $2\frac{4}{3}$ to make the fraction part bigger than $\frac{1}{2}$ so it was easier to subtract.

b)

$3\frac{1}{3} = \frac{10}{3}$

$1\frac{1}{2} = \frac{3}{2}$

$3\frac{1}{3} - 1\frac{1}{2}$ can be written as $\frac{10}{3} - \frac{3}{2}$

$\frac{10}{3} - \frac{3}{2} = \frac{20}{6} - \frac{9}{6} = \frac{11}{6}$

Change back to a mixed number: $\frac{11}{6} = 1\frac{5}{6}$

I changed each number to an improper fraction.

Think together

1 **a)** Work out $4\frac{1}{3} - 2\frac{3}{4}$.

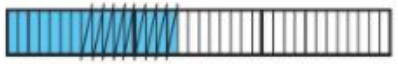
Use the diagram to help you explain the method.

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

Subtract the wholes: $3 - 2 = \square$ 

The lowest common multiple of 3 and 4 is $\square$.

Subtract the parts:

$\frac{4}{3} - \frac{3}{4} = \frac{\square}{\square} - \frac{\square}{\square} = \frac{\square}{\square}$ 

So $4\frac{1}{3} - 2\frac{3}{4} = \square + \frac{\square}{\square} = \square\frac{\square}{\square}$

b) Work out $3\frac{1}{5} - 1\frac{1}{2}$ by converting each mixed number to an improper fraction.

$3\frac{1}{5} = \frac{\square}{5}$ $1\frac{1}{2} = \frac{\square}{2}$ so $3\frac{1}{5} - 1\frac{1}{2}$ can be written as $\frac{\square}{5} - \frac{\square}{2}$

The lowest common multiple of 5 and 2 is $\square$.

Find a common denominator: $\frac{\square}{5} - \frac{\square}{2} = \frac{\square}{\square} - \frac{\square}{\square} = \frac{\square}{\square}$

Change back to a mixed number: $\frac{\square}{\square} = \square\frac{\square}{\square}$

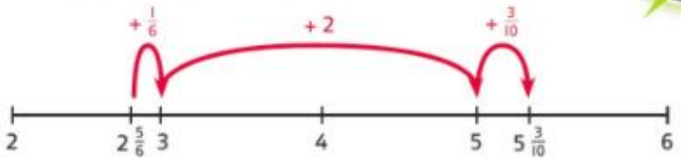
2 It takes Jamilla $2\frac{1}{4}$ hours to complete a puzzle.

It takes Andy $\frac{2}{3}$ of an hour less.

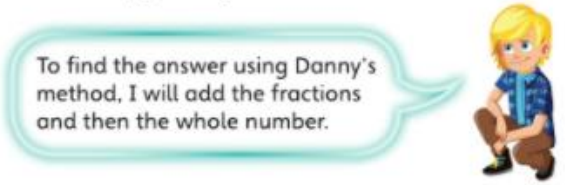
How many hours does it take Andy to complete the puzzle?

3 **a)** Danny is working out $5\frac{3}{10} - 2\frac{5}{6}$.

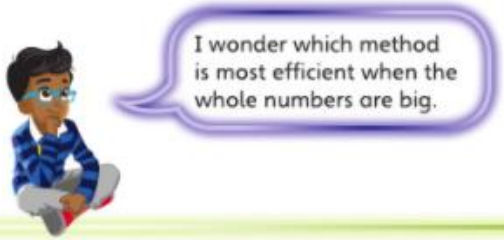
He counts on a number line.



What answer will Danny get using this method?



b) Use Max's, Isla's and Danny's methods to work out $3\frac{1}{2} - 1\frac{7}{10}$ and $26\frac{1}{2} - 18\frac{4}{5}$.



→ Practice book 6A p114

Thursday 19th November

Problem solving – adding and subtracting fractions 1

Discover

1 **a)** The children are going to make some purple paint using the instructions.

How many litres of purple paint will they make?

b) $3\frac{1}{2}$ litres of purple paint are needed to fully cover all the roofs.

$1\frac{1}{5}$ litres of purple paint are needed to paint the wooden poles.

Will there be enough paint to paint both the roofs and the poles?

Share

a)

Blue 

Red 

White 

I added the red and blue paint first and then added the white paint.

Method 1

Add the red paint and blue paint: $2\frac{3}{5} + 1\frac{1}{2}$

Add the wholes: $2 + 1 = 3$

The lowest common denominator of 5 and 2 is 10.

Add the fractions: $\frac{3}{5} + \frac{1}{2} = \frac{6}{10} + \frac{5}{10} = \frac{11}{10} = 1\frac{1}{10}$

So $3 + 1\frac{1}{10} = 4\frac{1}{10}$

Now add on the white paint: $4\frac{1}{10} + \frac{3}{4} = 4\frac{2}{20} + \frac{15}{20} = 4\frac{17}{20}$

The total paint made is $4\frac{17}{20}$.

Method 2

$2\frac{3}{5} + 1\frac{1}{2} + \frac{3}{4}$

Add the wholes: $2 + 1 + 0 = 3$

Add the parts: $\frac{3}{5} + \frac{1}{2} + \frac{3}{4} = \frac{12}{20} + \frac{10}{20} + \frac{15}{20}$

$= \frac{37}{20}$

$= 1\frac{17}{20}$

Add the wholes and the parts: $3 + 1\frac{17}{20} = 4\frac{17}{20}$

The children will make $4\frac{17}{20}$ litres of purple paint.

I added all the fractions at once.

b) Paint needed for the roofs and the poles: $3\frac{1}{2} + 1\frac{1}{5}$

Add the wholes: $3 + 1 = 4$

Add the parts: $\frac{1}{2} + \frac{1}{5} = \frac{5}{10} + \frac{2}{10} = \frac{7}{10}$

Add the wholes and the parts: $4 + \frac{7}{10} = 4\frac{7}{10}$

Compare the fractions using equivalent fractions with a common denominator.

$4\frac{7}{10} = 4\frac{14}{20}$

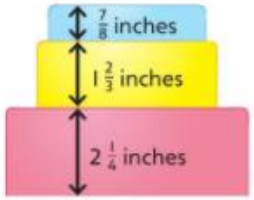
$4\frac{17}{20} > 4\frac{14}{20}$ so there will be enough purple paint to paint the roofs and the poles.

Think together

1 Holly makes a wedding cake.

Calculate the total height of the cake using the two different methods.

The total height of the cake is $\square\frac{\square}{\square}$ inches.



2 Work out the missing numbers.

a) $\square\frac{\square}{\square} - 2\frac{1}{3} = 1\frac{5}{6}$

b) $2\frac{1}{3} - \frac{\square}{\square} = 1\frac{5}{6}$

3 Lee has some sheets of card.

Area = $15\frac{4}{9}$ cm^2

Area = $17\frac{1}{6}$ cm^2

Lee places the star on the blue card and sticks it down. What is the area of the blue background?

Friday 20th November

Problem solving – adding and subtracting fractions 2

Discover

1 a) Aki's bowling balls have a total mass of $15\frac{3}{4}$ kg.

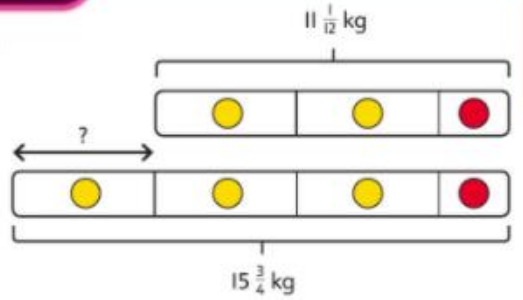
Bella's bowling balls have a total mass of $11\frac{1}{12}$ kg.

Work out the mass of one yellow ball.

b) Work out the mass of one red striped ball.

Share

a)



I drew a bar model. I worked out the mass of one yellow bowling ball by subtracting.

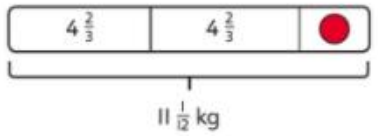
Mass of 1 yellow bowling ball = $15\frac{3}{4} - 11\frac{1}{12}$

$15\frac{3}{4} = 15\frac{9}{12}$

$15\frac{9}{12} - 11\frac{1}{12} = 4\frac{8}{12}$ $4\frac{8}{12} = 4\frac{2}{3}$

The mass of 1 yellow bowling ball is $4\frac{2}{3}$ kg.

b)



Now I know the mass of each yellow bowling ball I can put this into my model.

The mass of 2 yellow bowling balls is

$4\frac{2}{3} + 4\frac{2}{3} = 8\frac{4}{3} = 8 + 1\frac{1}{3} = 9\frac{1}{3}$ kg

$11\frac{1}{12} = 10 + \frac{13}{12}$

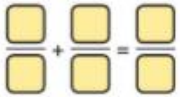
So $10\frac{13}{12} - 9\frac{1}{3} = 10\frac{13}{12} - 9\frac{4}{12} = 1\frac{9}{12}$

$1\frac{9}{12} = 1\frac{3}{4}$

The mass of one red striped bowling ball is $1\frac{3}{4}$ kg.

Think together

1 What fraction of the shape is not shaded?



of the shape is not shaded.

2 Kate is cycling to the beach. It is $6\frac{1}{3}$ km from her house.

She cycles for $2\frac{4}{5}$ km, has a break and then cycles for another $1\frac{2}{3}$ km.

How much further does she need to cycle?

3 Three points are marked on a number line.

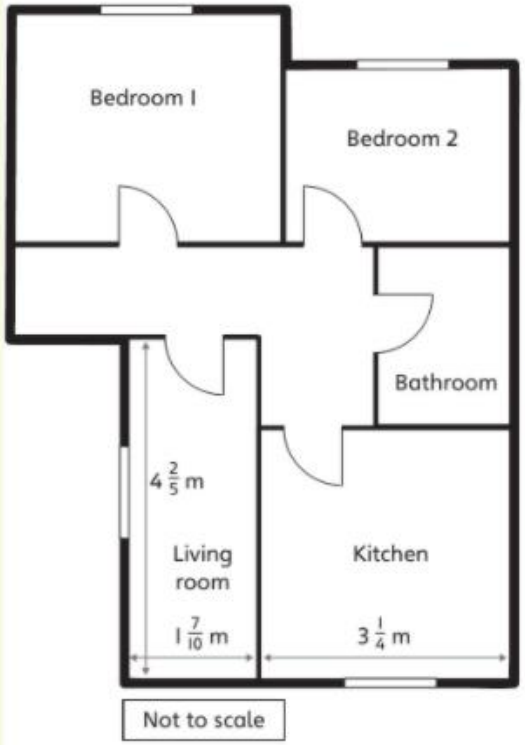
C is $1\frac{5}{6}$ less than B.

How much bigger is C than A?

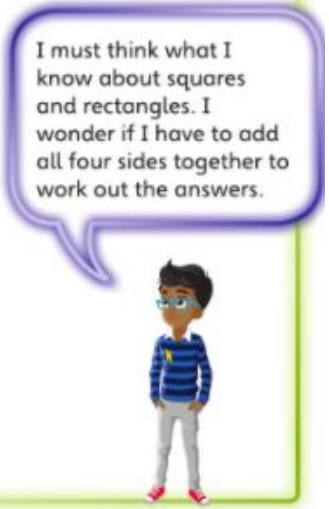
4 Mo's house has a square shaped kitchen and a rectangle shaped living room.

Which room has the bigger perimeter?

How much bigger?



Not to scale

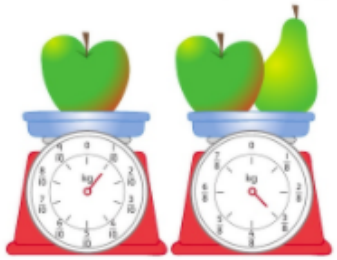


End of unit check

1 What is $\frac{2}{3} + \frac{3}{5}$?

A $1\frac{4}{15}$ B $1\frac{9}{15}$ C $\frac{5}{8}$ D $\frac{5}{15}$

2 How much does the pear weigh?



A $\frac{3}{8}$ kg B $\frac{11}{40}$ kg C $\frac{4}{18}$ kg D $\frac{19}{40}$ kg

3 Which one of these fractions is the biggest?

A $\frac{3}{4}$ B $\frac{4}{5}$ C $\frac{3}{5}$ D $\frac{7}{10}$

4 What is $2\frac{1}{5} + 3\frac{5}{6}$?

A $5\frac{6}{11}$ B $5\frac{6}{30}$ C $5\frac{1}{30}$ D $6\frac{1}{30}$

5 What is the missing denominator?

$1\frac{1}{4} + 1\frac{1}{\square} = 2\frac{9}{12}$

A 3 B 12 C 2 D 8

6 What is the number shown by the arrow?

A $2\frac{7}{10}$ B 2·7 C $3\frac{7}{10}$ D $3\frac{2}{5}$

7 At the school fete Lee is helping at the cake stall. He has $3\frac{1}{2}$ cakes.

Lee sells $2\frac{1}{6}$ cakes.

How many cakes does he have left?