Monday 30th November

Dividing a fraction by a whole number 3

Discover

1 **a)** The bamboo shoots are $\frac{2}{3}$ m long.

If the pandas share one bamboo shoot equally, how much will each panda get?

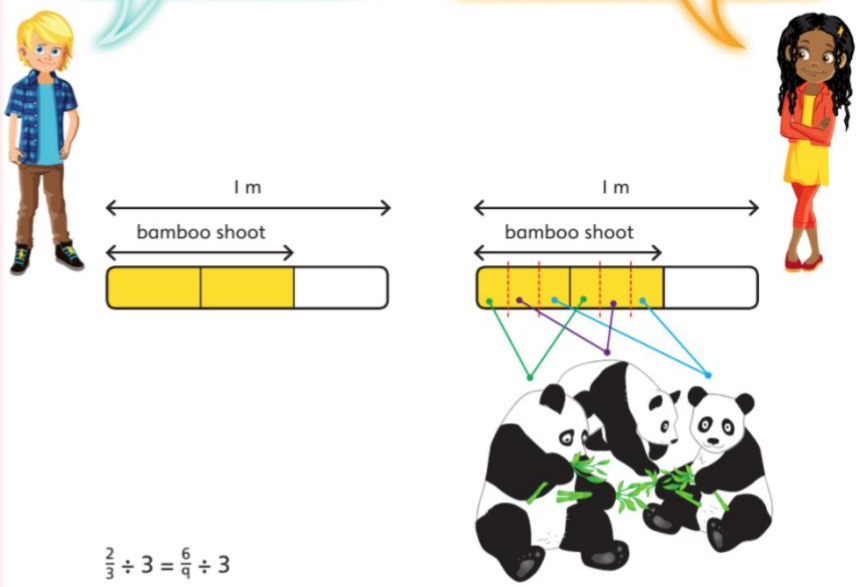
b) Another panda comes along to share the bamboo shoot.

How much will each panda get now?

Share

a) The bamboo shoot is $\frac{2}{3}$ m long.

3 pandas share the shoot equally.



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

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

Each panda will get $\frac{2}{9}$ m of bamboo shoot.

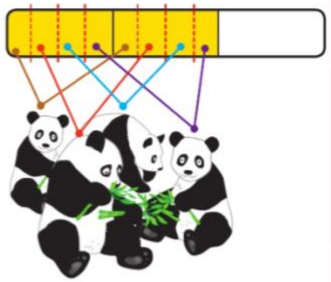
b) There are now 4 pandas.

$\frac{2}{3} \div 4 = \frac{8}{12} \div 4$

$= \frac{2}{12}$

$= \frac{1}{6}$

Each panda will get $\frac{1}{6}$ m of bamboo shoot.



I wonder if I need to divide each part into 4. I did it by dividing each part into 2.

Think together

1 A bamboo shoot is $\frac{5}{6}$ metre long. Share this between 3 pandas.

$\frac{5}{6} \div 3 = \frac{\square}{\square} \div 3 = \frac{\square}{\square}$

Each panda will get $\frac{\square}{\square}$ m of bamboo shoot.

2 Use the diagram to help you work out $\frac{3}{5} \div 6$.

$\frac{3}{5} \div 6 = \frac{\square}{\square}$

3 **a)** Max and Ambika are working out $\frac{2}{3} \div 6$.

CHALLENGE

I will divide each $\frac{1}{3}$ into 6 pieces.

Max

I will divide each $\frac{1}{3}$ into 3 pieces.

Ambika

Will they get the same answer? Show all the calculations.

Whose method do you prefer?

b) Use Max and Ambika's methods to work out $\frac{3}{4} \div 6$.

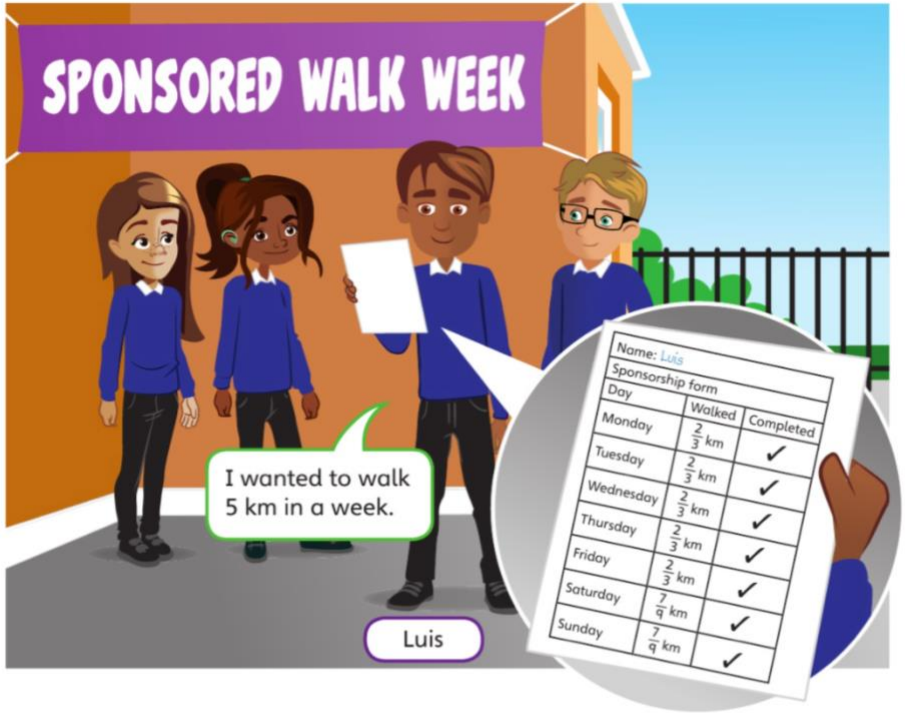
I drew a diagram to represent $\frac{3}{4}$ and then divided each part into 6 equal pieces.

I do not think you needed to do that. Look at the pattern between the numerator and the number we are dividing by.

Tuesday 1st December

Four rules with fractions

Discover



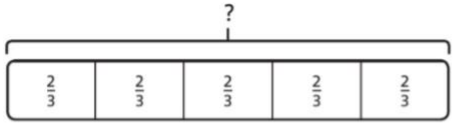
1 **a)** How far did Luis walk from Monday to Friday?

b) Luis's target was to walk 5 km in total in the week.

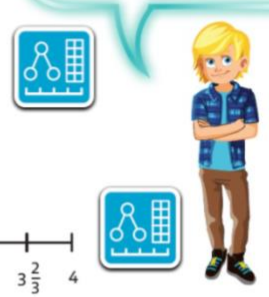
Did he meet his target?

Share

a) Luis walked $\frac{2}{3}$ km each day from Monday to Friday.



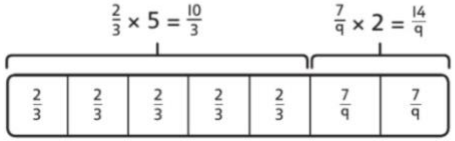
$\frac{2}{3}+\frac{2}{3}+\frac{2}{3}+\frac{2}{3}+\frac{2}{3}=\frac{10}{3}=3\frac{1}{3}$ or $\frac{2}{3}\times 5=\frac{10}{3}=3\frac{1}{3}$



Luis walked $3\frac{1}{3}$ km from Monday to Friday.

b) Luis's goal was to walk 5 km in total in the week.

He walked $\frac{7}{9}$ km on Saturday and $\frac{7}{9}$ km on Sunday.

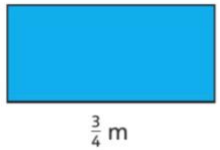


$\frac{10}{3}+\frac{14}{9}=\frac{30}{9}+\frac{14}{9}=\frac{44}{9}=4\frac{8}{9}$

$4\frac{8}{9}<5$, so Luis did not meet his target.

Think together

1 Max is working out the perimeter of this rectangle.



I multiplied the length by 2 and the width by 2 and then added together.

Max

Work out the perimeter using Max's method.

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

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

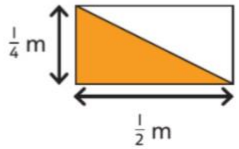
$= \frac{\square}{\square} = \frac{\square}{\square}$

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

The perimeter of the rectangle is $\square \frac{\square}{\square}$ m.

2 What is the area of the shaded part of the rectangle?

$\frac{1}{2} \times \frac{\square}{\square} \times \frac{\square}{\square} = \frac{\square}{\square}$



The area of the shaded part is $\frac{\square}{\square}$ m^2.

3 Jamilla and Alex have worked out the answer to this calculation.

CHALLENGE

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

I think the answer is $\frac{7}{20}$.

Jamilla

I think the answer is $\frac{1}{5}$.

Alex

a) Whose answer is correct?

b) Explain how Jamilla and Alex worked out their answers. Explain why one of them is wrong.

You need to remember the order of operations. Which operation do you do first – multiplication or addition?

Wednesday 2nd December

Calculating fractions of amounts

Discover

1 **a)** The apples are shared into the baskets equally.

How many apples will the Year 6 children get?

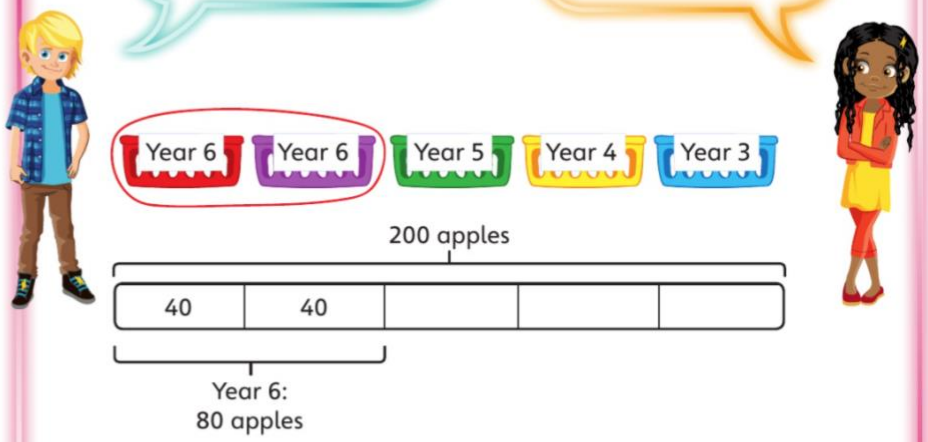
b) The Year 6 children eat $\frac{3}{10}$ of their apples in the morning and the remaining apples in the afternoon.

How many apples do they eat in the afternoon?

Share

a) There are 200 apples in the box.

The apples are shared equally between the baskets.



The 200 apples are shared between 5 baskets.

$\frac{1}{5}$ of 200 = 200 ÷ 5 = 40

There are 2 baskets for Year 6. The Year 6 children will get $\frac{2}{5}$ of the apples.

$\frac{2}{5}$ of 200 = 2 × 40 = 80

The Year 6 children will get 80 apples.

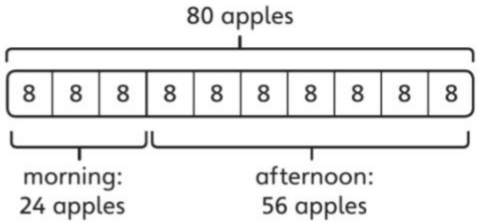
b) The Year 6 children eat $\frac{3}{10}$ of their apples in the morning.

$\frac{1}{10}$ of 80 = 8

$\frac{3}{10}$ of 80 = 3 × 8 = 24

80 − 24 = 56

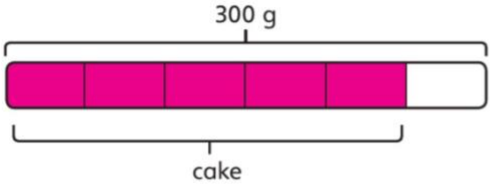
The Year 6 children eat 56 apples in the afternoon.



I just found $\frac{7}{10}$ of 80. If the children eat $\frac{3}{10}$ in the morning, they eat $\frac{7}{10}$ in the afternoon.

Think together

1 $\frac{5}{6}$ of this bag of flour is needed for a cake. How much flour is needed for the cake?



$\frac{1}{6}$ of 300 g is 300 ÷ ☐ = ☐ g

$\frac{5}{6}$ of 300 g is ☐ × ☐ = ☐ g

☐ g of flour is needed.

2 There are 28 children in a Year 6 class. $\frac{5}{7}$ of the children are going on a school trip.

How many children are **not** going on the trip?

☐ children are not going on the trip.

I think I could complete this question without subtracting.

3 There are 36 children in a swimming lesson.

$\frac{1}{3}$ of the children are boys. $\frac{1}{2}$ of the boys wear goggles.

Mo and Richard are working out how many of the boys wear goggles.

I think 18 boys wear goggles, because $\frac{1}{2}$ of 36 is 18.

Mo

I did 36 ÷ 3 = 12. I think 12 of the boys wear goggles.

Richard

Mo and Richard are both incorrect.

What mistakes have they made?

What is the correct answer?

Remember, you can draw a bar model to help you.

Thursday 3rd December

Problem solving – fractions of amounts

Discover

1 **a)** Lee spends $\frac{1}{4}$ of his pocket money on sweets.

How much pocket money did Lee have to begin with?

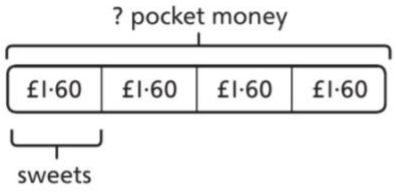
b) The jar was full before Lee bought any sweets.

Lee bought $\frac{2}{5}$ of the jar.

How many sweets were in the jar when it was full?

Share

a) Lee spends $\frac{1}{4}$ of his pocket money on sweets. The sweets cost £1·60.



When I first tried this, I made the mistake of finding $\frac{1}{4}$ of £1·60 to get £0·40. It is okay to make mistakes if I learn from them.

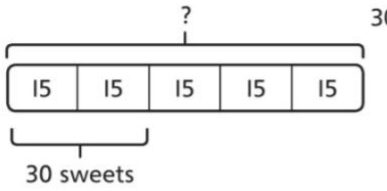
$\frac{1}{4}$ of his pocket money is £1·60.

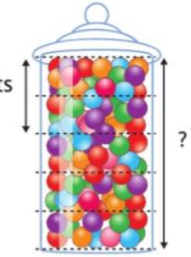
£1·60 × 4 = £6·40

Lee had £6·40 to begin with.

b) The jar was full before Lee bought any sweets.

Lee bought $\frac{2}{5}$ of the jar.





$\frac{2}{5}$ of the jar = 30 sweets

30 ÷ 2 = 15 sweets

15 sweets = $\frac{1}{5}$ of the jar

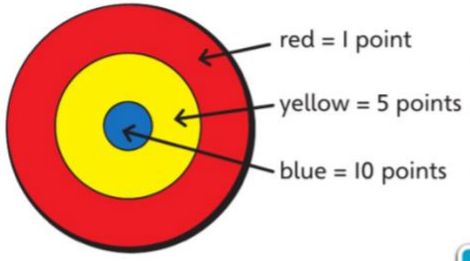
15 × 5 = 75

There were 75 sweets in the jar when it was full.

To work it out I did 30 + 30 + 15 = 75 sweets.

Think together

1 Kate gets 24 darts.



$\frac{1}{3}$ of Kate's darts go in the red section.

$\frac{1}{4}$ of them go in the yellow section.

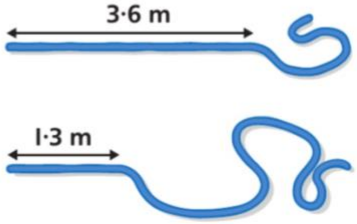
The rest go in the blue section.

How many points does Kate score?

2 There are two pieces of rope.

$\frac{2}{3}$ of rope A is 3·6 m.

$\frac{1}{4}$ of rope B is 1·3 m.



Which piece of rope is longer? By how much?

Rope _____ is longer by ☐ m.

3 Amelia is thinking of a number.

CHALLENGE

What is $\frac{8}{9}$ of Amelia's number?

Create similar questions of your own to ask a partner.

Friday 4th December

End of unit check

1 Work out $\frac{1}{3} \times \frac{2}{5}$.

A $\frac{2}{15}$ B $\frac{3}{15}$ C $\frac{3}{8}$ D $\frac{2}{8}$

2 What is $\frac{1}{4} \div 2$?

A 2 B $\frac{1}{2}$ C $\frac{1}{8}$ D $\frac{2}{4}$

3 Lee uses $\frac{5}{8}$ of a tin of tuna each day to make a sandwich.

How many tins of tuna will he need to make a sandwich every day for 4 days?

Give your answer in its simplest form.

A $2\frac{2}{4}$ B $\frac{20}{32}$ C $2\frac{1}{2}$ D $\frac{5}{32}$

4 There are 30 children in a class. $\frac{2}{5}$ of the children are girls.
How many boys are in the class?

A 12 B 18 C 30 D 75

5 $\frac{2}{3}$ of a number is 24. What is the number?

A 8 B 16 C 24 D 36

6 What is the missing fraction?

$$\frac{2}{7} \div 4 = \frac{\square}{\square}$$

A $\frac{2}{7}$ B $\frac{8}{7}$ C $\frac{1}{14}$ D $1\frac{1}{14}$

7 How many hours are there in $\frac{3}{8}$ of a day?

A 24 B 9 C 8 D 3

8 Find the area of the rectangle.

Give your answer in its simplest form.

9 $\frac{5}{9}$ of the pencils in a box are red.

There are 40 red pencils in the box.

How many pencils are in the box?