Contents

This tells you which page you need.

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.

Multiplying fractions ❶

Discover

> Each day we need to put $\frac{2}{9}$ of a box of dog food in each of their bowls.

Lexi

❶ a) What fraction of the box is needed each day for the 3 dogs?

b) How many boxes of dog food will Lexi and her mum need to buy to feed the dogs for 5 days?

Share

a) Each dog needs $\frac{2}{9}$ of the box. There are 3 dogs.
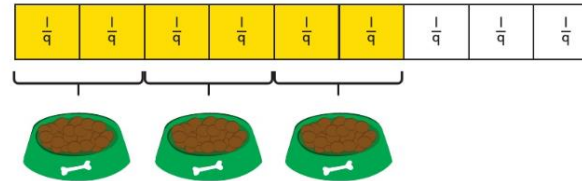
Using addition: $\frac{2}{9} + \frac{2}{9} + \frac{2}{9} = \frac{6}{9} = \frac{2}{3}$

Using multiplication: $\frac{2}{9} \times 3 = \frac{6}{9} = \frac{2}{3}$

$\frac{2}{3}$ of the box is needed each day for the 3 dogs.

b) Each day the dogs need $\frac{2}{3}$ of a box.

There are 5 days.

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

> I think it is simpler to multiply. To work out how many $\frac{1}{3}$s, I work out $2 \times 5 = 10$.
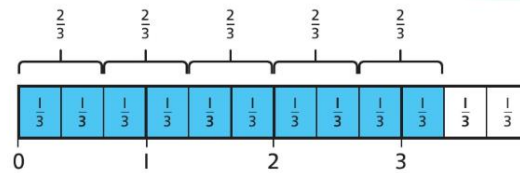
The dogs need $3\frac{1}{3}$ boxes for 5 days. Lexi and her mum will need to buy 4 boxes to feed the dogs for 5 days.

Multiplying fractions ❶

① Each box contains $\frac{3}{10}$ of a pizza.

How much pizza is there in total?

I box

$$\frac{3}{10} \times 3 = \frac{\boxed{}}{10}$$
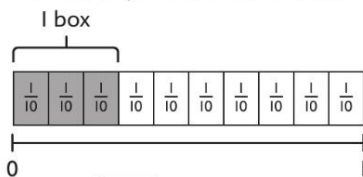
There are $\frac{\boxed{}}{10}$ of a pizza in total.

② Each glass contains $\frac{3}{8}$ litres of milk.

How many litres of milk are there in total?

I glass

$$\frac{3}{8} \times 5 = \frac{\boxed{}}{8} = \boxed{} \frac{\boxed{}}{8}$$
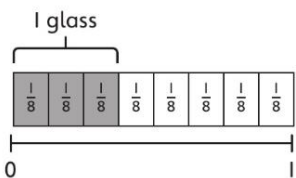
There are $\boxed{} \boxed{}$ litres of milk in total.

③ **a)** Use the model to help you work out $\frac{3}{5} \times 4$.
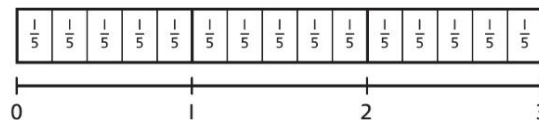
$$\frac{3}{5} \times 4 = \frac{\boxed{}}{5} = \boxed{} \frac{\boxed{}}{5}$$

b) Use the model to help you work out $2 \times \frac{7}{9}$.
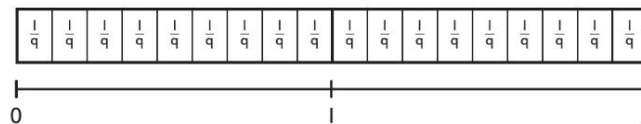
$$2 \times \frac{7}{9} = \frac{\boxed{}}{9} = \boxed{} \frac{\boxed{}}{9}$$

④ Complete these multiplications.

a) $\frac{6}{11} \times 5$

c) $\frac{3}{4} \times 7$

b) $\frac{5}{6} \times 6$

d) $11 \times \frac{3}{5}$

Multiplying fractions ❷

Discover

Yards are a unit of measure. We do not use these as much now.

1 **a)** How far does the glacier travel in 3 days?

b) How many days will it take the glacier to travel more than 15 yards?

Share

a) The glacier moves $1\frac{3}{4}$ yards each day.

Multiply $1\frac{3}{4}$ by 3 to work out how far it moves in 3 days.
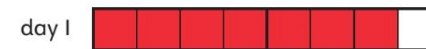
I converted $1\frac{3}{4}$ to an improper fraction. I then multiplied by 3.

$$1\frac{3}{4} = \frac{7}{4}$$
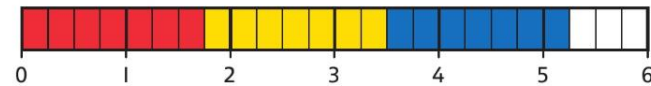
$$\frac{7}{4} \times 3 = \frac{21}{4} = 5\frac{1}{4}$$

The glacier travels $5\frac{1}{4}$ yards in 3 days.

b) Multiply $\frac{7}{4}$ by different numbers until the answer is greater than 15.

$$\frac{7}{4} \times 6 = \frac{42}{4} = 10\frac{2}{4}$$

$$\frac{7}{4} \times 7 = \frac{49}{4} = 12\frac{1}{4}$$

$$\frac{7}{4} \times 8 = \frac{56}{4} = 14$$

$$\frac{7}{4} \times 9 = \frac{63}{4} = 15\frac{3}{4}$$

I used trial and error to find the correct answer.

After 9 days, the glacier has moved more than 15 yards.

Multiplying fractions ❷

1 A bag of flour has a mass of $1\frac{3}{5}$ kg.

a) What is the mass of two bags of flour?

$1\frac{3}{5} = \dfrac{\boxed{}}{5}$

$\dfrac{\boxed{}}{5} \times 2 = \dfrac{\boxed{}}{5} = \boxed{}\dfrac{\boxed{}}{5}$ kg

b) What is the mass of 3 bags of flour?

$\dfrac{\boxed{}}{5} \times 3 = \dfrac{\boxed{}}{5} = \boxed{}\dfrac{\boxed{}}{5}$ kg

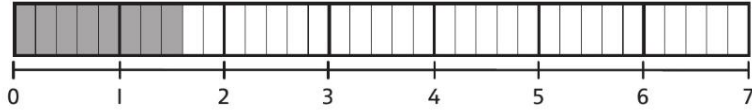**c)** What is the mass of 4 bags of flour?

$\dfrac{\boxed{}}{5} \times 4 = \dfrac{\boxed{}}{5} = \boxed{}\dfrac{\boxed{}}{5}$ kg

2 A box needs $2\frac{1}{4}$ metres of sticky tape to seal.

How much sticky tape is needed to seal 5 boxes?

$\boxed{}$

$\boxed{}\dfrac{\boxed{}}{\boxed{}}$ m of sticky tape is needed to seal 5 boxes.

3 Work out these multiplications.

a) $1\frac{2}{3} \times 3 = \dfrac{\boxed{}}{3} \times 3$

$= \dfrac{\boxed{}}{3}$

$= \boxed{}$

b) $1\frac{2}{3} \times 5 = \dfrac{\boxed{}}{3} \times 5$

$= \dfrac{\boxed{}}{3}$

$= \boxed{}\dfrac{\boxed{}}{3}$

c) $1\frac{2}{3} \times 7 = \dfrac{\boxed{}}{3} \times 7$

$= \dfrac{\boxed{}}{3}$

$= \boxed{}\dfrac{\boxed{}}{3}$

d) $10 \times 1\frac{2}{3} = 10 \times \dfrac{\boxed{}}{3}$

$= \dfrac{\boxed{}}{3}$

$= \boxed{}\dfrac{\boxed{}}{3}$

4 **a)** Louise wants to row 12 km in total. She rows $2\frac{7}{10}$ km each day for 5 days.

Does she meet her target? Show your working.

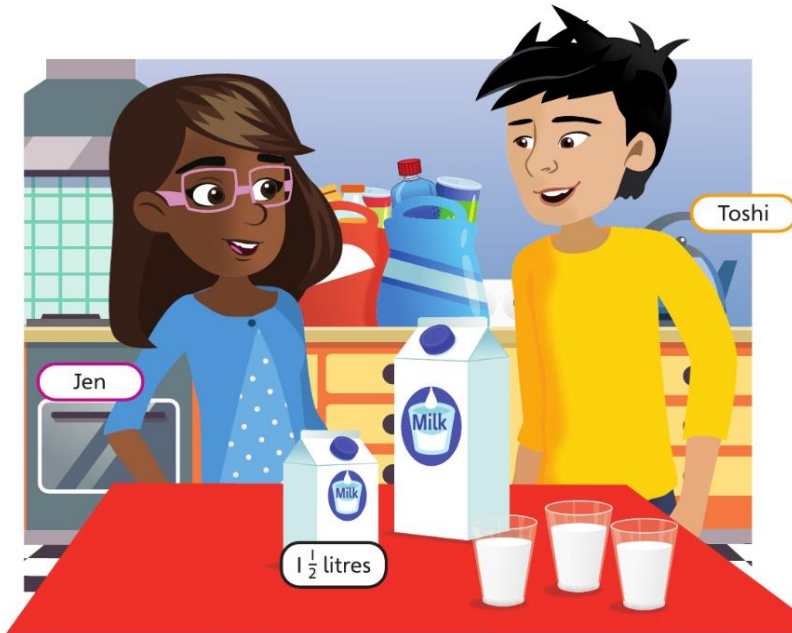$\boxed{}$

b) Louise cycles $1\frac{2}{3}$ km each day.

How many days will it take her to cycle more than 12 km?

Show your working.

$\boxed{}$

Solving problems – fractions

Discover

Toshi

Jen

$1\frac{1}{2}$ litres
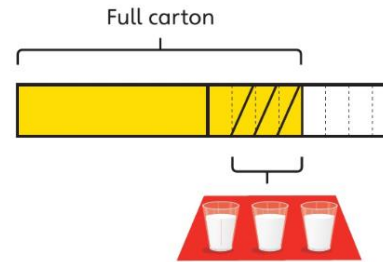
1 a) Jen pours 3 glasses of milk from the $1\frac{1}{2}$ litre carton.

Each glass holds $\frac{1}{8}$ of a litre.

How much milk is left in the carton?

b) The large carton holds $2\frac{3}{4}$ litres more than the small carton.

How much milk do the two cartons hold in total?

Share

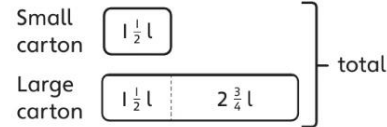**a)** The carton holds $1\frac{1}{2}$ litres. Each glass holds $\frac{1}{8}$ litre.

Full carton

I converted $1\frac{1}{2}$ to $1\frac{4}{8}$ to make it easier to subtract $\frac{3}{8}$.

$1\frac{4}{8} - \frac{3}{8} = 1\frac{1}{8}$. There is $1\frac{1}{8}$ litres of milk left in the carton.

b)

Small carton $1\frac{1}{2}$ l

Large carton $1\frac{1}{2}$ l $2\frac{3}{4}$ l   total

I worked out how much was in the large carton first and then added this on to the small carton.

Large carton

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

Add the wholes: $1 + 2 = 3$

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

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

The large carton holds $4\frac{1}{4}$ litres.

Total

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

$1 + 4 = 5$

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

$5 + \frac{3}{4} = 5\frac{3}{4}$

There are $5\frac{3}{4}$ litres of milk in total.

Lesson 3

Solving problems – fractions

1 Ebo spends $\frac{4}{9}$ of his pocket money on a present and $\frac{1}{3}$ of his pocket money on a comic book. What fraction of his pocket money does he have left?

2 Leo divides a rectangle into three equal parts and shades one of the parts. He then divides one of the parts into three more equal parts and shades one of them.
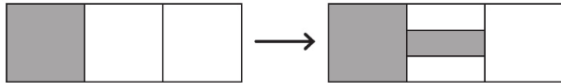
a) What fraction of the shape is now shaded?

b) Explain your method.

3 Max has a 3 kg bag of oats. He uses $\frac{1}{2}$ kg to make some porridge.

He uses $2\frac{3}{8}$ kg to make some flapjack. How many kilograms of oats are left in the bag?

4 Kate used $2\frac{1}{3}$ metres of ribbon to tie a present.

Another present needed $\frac{1}{9}$ of a metre more ribbon than the first.

How much ribbon did Kate use in total?

5 Work out the missing numbers:

a) $\frac{1}{5} + \frac{\boxed{}}{15} = \frac{7}{15}$

c) $\frac{1}{5} + \frac{\boxed{}}{15} = \frac{1}{3}$

b) $\frac{1}{5} + \frac{\boxed{}}{15} = \frac{4}{15}$

d) $\frac{1}{5} + \frac{\boxed{}}{15} = 1$
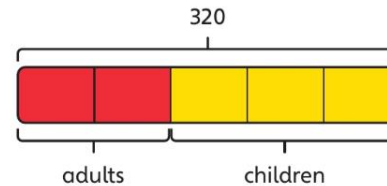
Calculating fractions of amounts

Discover

I **a)** There are 320 people in the theme park.

$\frac{2}{5}$ of the people are adults.

How many children are in the theme park?

b) A child ticket is $\frac{3}{8}$ of the cost of an adult ticket.

How much does an adult ticket cost?

Share

a) There are 320 people in the theme park.

$\frac{2}{5}$ of the people are adults.

This means $\frac{3}{5}$ of the people are children.

I drew a bar model to help me represent the situation. 2 parts represent the adults and 3 parts represent the children.

320

adults   children

Work out the value of $\frac{1}{5}$ by dividing 320 by 5.

$$5 \overline{\smash{)}3\,^32\,^20} \quad \begin{array}{c} 6 \ \ 4 \end{array} \longrightarrow 320 \div 5 = 64$$

To work out the number of children multiply by 3.

320

| 64 | 64 | 64 | 64 | 64 |
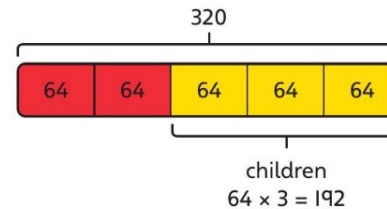
children
$64 \times 3 = 192$

There are 192 children in the theme park.

$\frac{3}{5}$ of the people are children, so I multiplied by 3 to work out $\frac{3}{5}$.

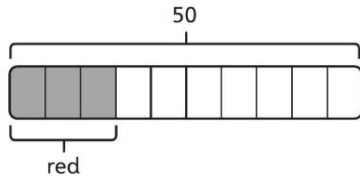I worked out the number of adults and subtracted it from 320. You did it using a more efficient method.

Calculating fractions of amounts

1 Kate buys this bag of balloons.

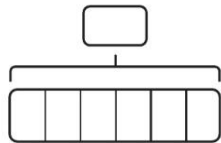$\frac{3}{10}$ of the balloons are red.

How many balloons are red?

50

50

red

50 ÷ [　] = [　]

[　] × [　] = [　]

[　] balloons are red.

2 A box contains 30 counters.

$\frac{5}{6}$ of the counters are yellow. The rest are blue.

How many yellow counters are in the box?

There are [　] yellow counters in the box.

3 Work out these calculations.

a) $\frac{1}{7}$ of £140 = £ [　]

b) $\frac{7}{12}$ of 48 kg = [　] kg

c) $\frac{11}{20}$ of £800 = £ [　]

d) $\frac{13}{20}$ of £800 = £ [　]
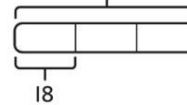
4 What are Bella and Ebo's numbers?
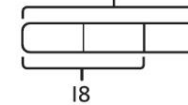
Bella: $\frac{1}{3}$ of my number is 18.
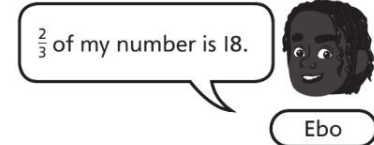
Ebo: $\frac{2}{3}$ of my number is 18.

Bella's number

18

Ebo's number

18

Bella's number is [　].

Ebo's number is [　].