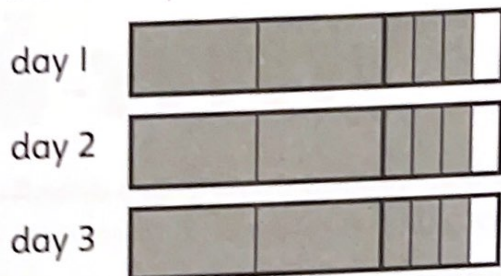


Multiplying fractions 3

- 1 A horse eats $2\frac{3}{4}$ carrots each day.

How many carrots does it eat over 3 days?



Multiply the wholes:

$$\square \times 3 = \square$$

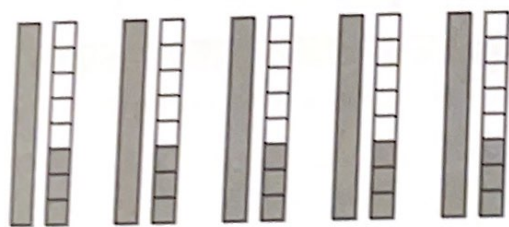
Multiply the parts:

$$\frac{\square}{\square} \times 3 = \frac{\square}{\square} = \square \frac{\square}{\square}$$

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

The horse eats $\square \frac{\square}{\square}$ carrots over 3 days.

- 2 What is $1\frac{3}{8} \times 5$?



$$1\frac{3}{8} \times 5 = \square \frac{\square}{\square}$$



- 3 Each day Laura runs $3\frac{1}{2}$ km.

How far does she run from Monday to Friday?



Laura runs km from Monday to Friday.

- 4 Do you agree or disagree with Lee?
Explain your answer.

$3\frac{1}{3} \times 4$ is the
same as $4\frac{1}{3} \times 3$.



- 5 Work out these multiplications.

a) $7\frac{2}{5} \times 6$



b) $8\frac{1}{3} \times 6$



CHALLENGE

- 6 Reena makes lemonade and pours it into two different sized bottles.

A large bottle holds $5\frac{1}{4}$ glasses. A small bottle holds $2\frac{3}{4}$ glasses.



Reena fills 3 large bottles and 6 small bottles with her lemonade.
How many full glasses of lemonade can be poured?



Blank area for writing the solution to the challenge problem.

Reflect

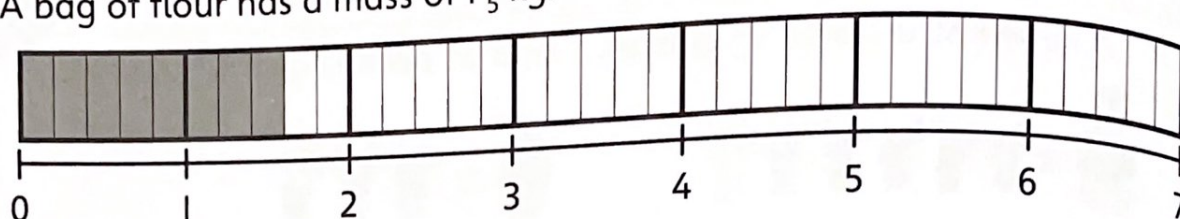
Max says $2\frac{3}{4} \times 5$ is the same as $10\frac{15}{4}$.

Do you agree? What advice would you give to Max?

Blank area for writing the reflection response.

Multiplying fractions 4

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



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

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

$$\frac{\boxed{}}{5} \times 2 = \frac{\boxed{}}{5} = \boxed{} \frac{\boxed{}}{5} \text{ kg}$$

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


$$\frac{\boxed{}}{5} \times 3 = \frac{\boxed{}}{5} = \boxed{} \frac{\boxed{}}{5} \text{ kg}$$

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

$$\frac{\boxed{}}{5} \times 4 = \frac{\boxed{}}{5} = \boxed{} \frac{\boxed{}}{5} \text{ kg}$$

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

How much sticky tape is needed to seal 5 boxes?



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

3 Work out these multiplications.

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

$$= \frac{\boxed{}}{3}$$

$$= \boxed{}$$

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

$$= \frac{\boxed{}}{3}$$

$$= \boxed{} \frac{\boxed{}}{3}$$

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

$$= \frac{\boxed{}}{3}$$

$$= \boxed{} \frac{\boxed{}}{3}$$

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

$$= \frac{\boxed{}}{3}$$

$$= \boxed{} \frac{\boxed{}}{3}$$

- 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.

- 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.

- 5 a) Circle the calculation that gives the greatest answer.

$\frac{2}{3} \times 20$

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

$2\frac{2}{3} \times 5$

- b) Circle the calculation that gives the smallest answer. Explain your reasoning.

$5\frac{1}{5} \times 8$

$2\frac{2}{7} \times 13$

- 6 These calculations give the same answer. What are the missing numbers?

$2\frac{3}{8} \times 15 = \boxed{} \frac{\boxed{}}{\boxed{}}$

$\boxed{} \frac{\boxed{}}{8} \times 5 = \boxed{} \frac{\boxed{}}{\boxed{}}$

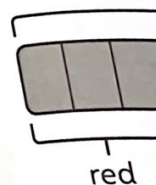
$11\frac{7}{8} \times \boxed{} = \boxed{} \frac{\boxed{}}{\boxed{}}$



CHALLENGE

Calculating

- 1 Kate buys this $\frac{3}{10}$ of the balloons. How many balloons does she have?



$50 \div \boxed{} = \boxed{}$

- 2 A box of 50 balloons has 5/6 of the balloons left. How many balloons were there at first?

Reflect

Which method would you use to work out $2\frac{4}{5} \times 6$? Explain the steps in your method.

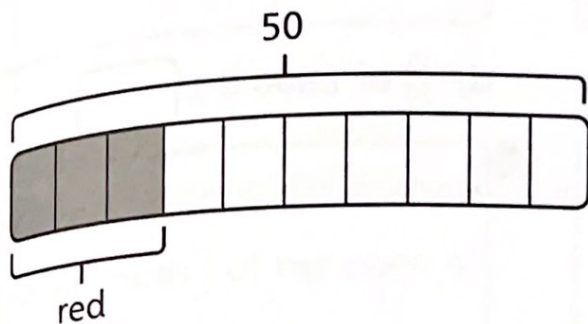


Calculating fractions of amounts

- 1 Kate buys this bag of balloons.

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

How many balloons are red?



$$50 \div \boxed{} = \boxed{}$$

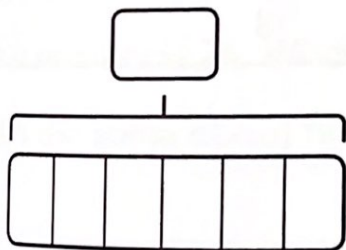
$$\boxed{} \times \boxed{} = \boxed{}$$

$\boxed{}$ 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 $\boxed{}$ 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 = £



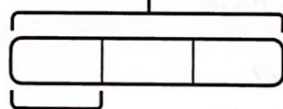
4 What are Bella and Ebo's numbers?




Bella

$\frac{1}{3}$ of my number is 18.

Bella's number



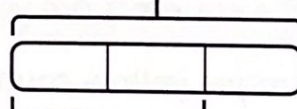
18




Bella's number is .

$\frac{2}{3}$ of my number is 18.

Ebo's number



18



Ebo's number is .

- 5 A pencil is $\frac{3}{4}$ the length of a piece of string.
The pencil is 24 cm. How long is the piece of string?
What mistake has Lexi made?

First I will divide
by 4 and then
multiply by 3.



Lexi

- 6 Olivia reads $\frac{2}{5}$ of her book on Monday.
On Tuesday, she reads $\frac{1}{6}$ of what is remaining.
On Wednesday, she reads the final 35 pages.
How many pages are in the book?

CHALLENGE

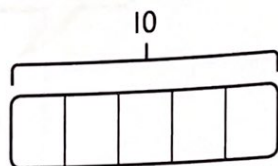
Reflect

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

What is the same about how you would solve these problems? What is different?

Using fractions as operators

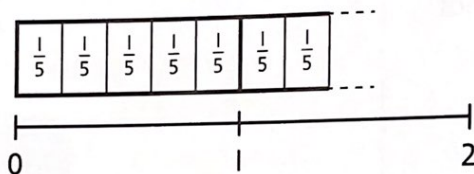
- 1 a) Calculate $\frac{1}{5}$ of 10.



$$10 \div 5 = \boxed{}$$

$$\text{So } \frac{1}{5} \text{ of } 10 = \boxed{}$$

- b) Calculate $\frac{1}{5} \times 10$.

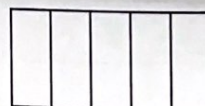
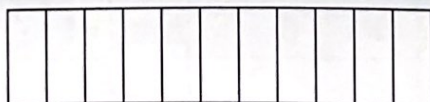


$$\frac{1}{5} \times 10 = \frac{\boxed{}}{5} = \boxed{}$$

- c) Write down two things that are the same about the questions and the answers in a) and b).

1. _____

2. _____



- 2 Draw lines to match the calculations with the same answer.

$\frac{1}{3} \times 15$

$\frac{1}{4}$ of 9

$9 \times \frac{1}{4}$

$\frac{1}{8}$ of 8

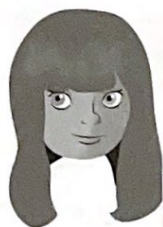
$\frac{4}{5} \times 30$

$\frac{4}{5}$ of 30

$8 \times \frac{1}{8}$

$\frac{1}{3}$ of 15

- 3 Mrs Dean asks her class to work out $\frac{5}{6} \times 72$.



I will work out $\frac{5}{6}$ of 72.

Olivia

I will work out $\frac{5}{6} \times 72$ and then write the answer as a mixed number.

Mo



- a) Use Olivia's method to work out the answer to Mrs Dean's question.



- b) Use Mo's method to work out the answer to Mrs Dean's question.



- c) Which method do you prefer? Why?

- 4 Here is a method to work out $\frac{1}{5}$ of 17.


Use this method to work out these calculations.

Instead of dividing 17 by 5 we can think of this as $\frac{1}{5} \times 17$.


$$17 \times \frac{1}{5} = \frac{17}{5} = 3 \frac{2}{5}$$

So, $\frac{1}{5}$ of 17 is equal to $3 \frac{2}{5}$.

- a) $\frac{1}{3}$ of 7




- b) $\frac{2}{7}$ of 16 hours



- 5 A bag contains 5 kg of flour.

Danny uses $\frac{1}{3}$ of the bag of flour to make some bread.

How much flour is left in the bag?



CHALLENGE

Reflect

Which method would you use to work out both of these calculations? Explain why.

$$\frac{1}{3} \text{ of } 17$$

$$\frac{4}{5} \times 45$$

- _____
- _____
- _____

problem solving – mixed word problems

- 1 A box contains some green and yellow counters.

$\frac{7}{9}$ of the box is green counters.

There are 24 yellow counters.

How many green counters are there?

green 

yellow  } 24

$$24 \div \boxed{} = \boxed{}$$

$$\boxed{} \times 7 = \boxed{}$$

There are $\boxed{}$ green counters.

- 2 Adam collects model cars and planes.

$\frac{7}{8}$ of the models he collects are cars.

He has 54 more cars than planes.

How many model cars does Adam have?

cars 

planes 

$$54 \div \boxed{} = \boxed{}$$

$$\boxed{} \times 7 = \boxed{}$$

Adam has $\boxed{}$ model cars.

- 3 Tom and Donna share some pencils. Tom has $\frac{7}{12}$ of the pencils.
 a) Tom gives Donna 8 pencils. They now have the same amount.

How many pencils did they share?



- b) $\frac{3}{4}$ of the pencils are red.

How many red pencils are there?



- 4 Isla has a box of shapes.
 $\frac{5}{8}$ of the shapes are triangles.
 $\frac{1}{4}$ of the shapes are squares.

The rest of the shapes are circles.

There are 68 more triangles than circles.

How many squares are in the box?

I will use my knowledge of fractions to find an equivalent fraction for $\frac{1}{4}$ that has a denominator of 8.



CHALLENGE

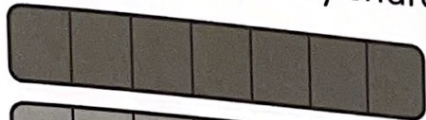
- 5 Lee and Olivia share some money.

Lee has $\frac{7}{11}$ of the money.

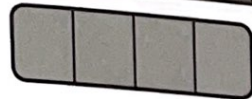
If Lee gives Olivia £18 then they have the same amount of money.

How much money did they share?

Lee



Olivia



Reflect

Which question did you find most challenging?

Describe how drawing a bar model helped you to answer that question.

- _____
- _____
- _____
- _____