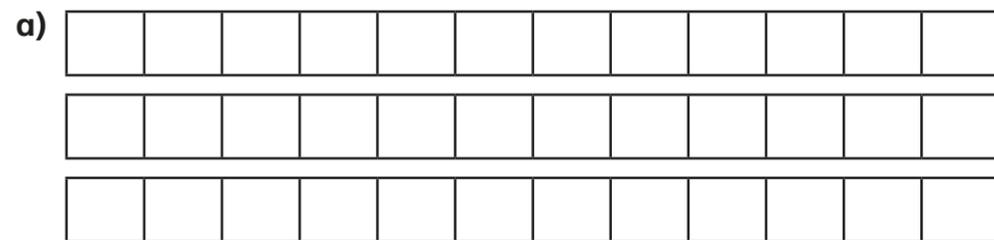


Subtract – breaking the whole

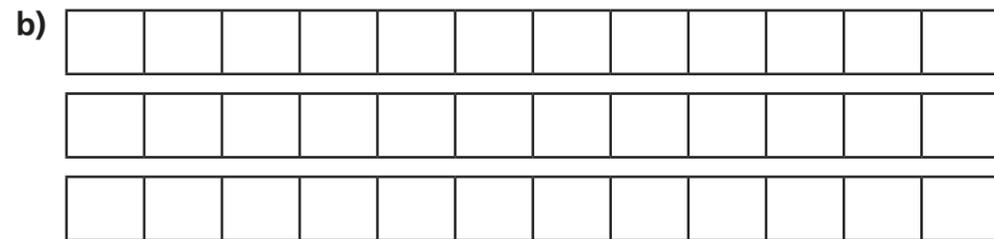


1 Complete the subtractions.

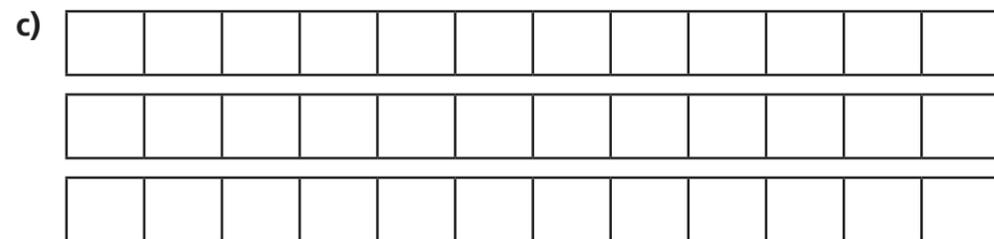
Use the bar models to help you.



$$2\frac{1}{2} - \frac{7}{12} = \square$$



$$2\frac{1}{2} - \frac{9}{12} = \square$$



$$2\frac{1}{2} - \frac{10}{12} = \square$$

2 a) Complete the subtractions.

$$3\frac{1}{4} - \frac{1}{8} = \square$$

$$3\frac{1}{4} - \frac{2}{8} = \square$$

$$3\frac{1}{4} - \frac{3}{8} = \square$$

$$3\frac{1}{4} - \frac{4}{8} = \square$$

b) At what point did the answer break the whole? Why?

c) Tick the calculations that will break the whole.

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

$$\boxed{7\frac{3}{4} - \frac{1}{8}}$$

$$\boxed{6\frac{11}{12} - \frac{2}{3}}$$

$$\boxed{4\frac{2}{5} - \frac{7}{15}}$$

3 Complete the subtractions.

a) $3\frac{1}{5} - \frac{7}{15} = \square$

d) $2\frac{1}{6} - \frac{5}{12} = \square$

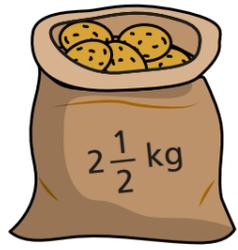
b) $3\frac{1}{16} - \frac{5}{8} = \square$

e) $3\frac{2}{9} - \frac{13}{18} = \square$

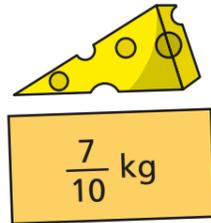
c) $4\frac{5}{12} - \frac{5}{6} = \square$

f) $3\frac{4}{9} - \frac{13}{27} = \square$

4 Here are some ingredients.



Potatoes



Cheese



Carrots

a) How much more do the carrots weigh than the cheese?

The carrots weigh kg more than the cheese.

b) Jack uses $\frac{17}{20}$ kg of carrots.

How many kilograms of carrots does he have left?

Jack has kg of carrots left.

c) Jack uses all the cheese and the same amount of potatoes.

How much do the leftover potatoes weigh?

The leftover potatoes weigh kg.

5 Eva is doing the long jump.

On her 1st attempt, she jumps $3\frac{2}{9}$ m.

Her 2nd attempt is $\frac{2}{3}$ m shorter than her first.

How far does Eva jump on her 2nd attempt?

Eva jumps m on her 2nd attempt.

6 a) The difference between a mixed number and a fraction is $\frac{7}{8}$

The fraction has a denominator of 16

What could the mixed number and the fraction be?

Give two possible answers.

and and

b) Talk to a partner about how you could find more answers.

Subtract 2 mixed numbers

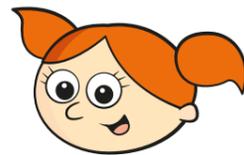
1 Amir and Alex are working out $3\frac{1}{2} - 2\frac{1}{4}$



Amir

First subtract 2 from 3,
then subtract $\frac{1}{4}$ from $\frac{1}{2}$
That leaves $1\frac{1}{4}$

Convert to an improper
fraction first, $\frac{7}{2} - \frac{9}{4}$, then
 $\frac{14}{4} - \frac{9}{4} = \frac{5}{4} = 1\frac{1}{4}$



Alex

Whose method do you prefer?

2 Use your preferred method to complete the subtractions.

a) $4\frac{4}{5} - 2\frac{3}{10} = \square$

c) $16\frac{1}{2} - 5\frac{1}{4} = \square$

b) $3\frac{5}{8} - 1\frac{1}{4} = \square$

d) $10\frac{5}{6} - 5\frac{5}{12} = \square$

What do you notice about your answer to part d)?

3 Car A travels for $15\frac{1}{4}$ miles.
Car B travels for $21\frac{5}{12}$ miles.



How much further does Car B travel than Car A?

Car B travels miles further than Car A.

4 Amir and Dora are working out $4\frac{1}{5} - 1\frac{2}{5}$



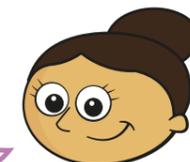
Amir

You can't use my
method because you can't do
 $\frac{1}{5} - \frac{2}{5}$

a) Do you agree with Amir?

b)

I know that $4\frac{1}{5} = 3\frac{6}{5}$



Dora

How does this help you to work out the subtraction?

c) Complete the calculation.

$4\frac{1}{5} - 1\frac{2}{5} = \square$

5 Complete the subtractions.

a) $4\frac{4}{5} - 2\frac{9}{10} = \square$

c) $5\frac{2}{7} - 2\frac{11}{14} = \square$

b) $3\frac{5}{8} - 1\frac{3}{4} = \square$

d) $2\frac{1}{6} - 1\frac{7}{18} = \square$

6 Dexter is subtracting fractions.



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

Explain the mistake that Dexter has made.

7 Here are some number cards.

$3\frac{1}{12}$

$4\frac{1}{2}$

$2\frac{5}{24}$

$4\frac{5}{6}$

a) Use two of the number cards to find the smallest difference.

$\square - \square = \square$

b) Use two of the number cards to find the difference closest to 2

$\square - \square = \square$

8 Complete the magic square.

The total of each column is $5\frac{7}{20}$

The total of each row is $5\frac{7}{20}$

$1\frac{1}{2}$	$1\frac{3}{5}$	
	$1\frac{7}{20}$	$1\frac{7}{10}$

9 A marathon is $26\frac{1}{5}$ miles.

Dexter has run $18\frac{1}{10}$ miles.

Eva has run $19\frac{3}{5}$ miles.

a) How much further has Eva run than Dexter?

\square miles

b) How much further does Eva need to run to complete the marathon?

\square miles



Multiply unit fractions by an integer



1 Complete the calculations.

Use the bar models to help you.



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

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



$$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \square$$

$$4 \times \frac{1}{7} = \square$$



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

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



$$\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} = \square$$

$$7 \times \frac{1}{10} = \square$$

2 Complete the multiplications.

a) $3 \times \frac{1}{8} = \square$

e) $\frac{1}{5} \times 4 = \square$

b) $3 \times \frac{1}{10} = \square$

f) $\frac{1}{9} \times 8 = \square$

c) $\frac{1}{8} \times 5 = \square$

g) $8 \times \frac{1}{11} = \square$

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

h) $\frac{1}{11} \times 10 = \square$

3 Match the addition to the equivalent multiplication.

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

$$2 \times \frac{1}{5}$$

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

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

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

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

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

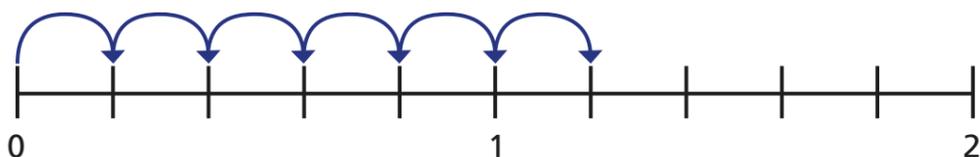
$$2 \times \frac{1}{3}$$

- 4 A pizza is cut into sixths.
Jack eats five of the slices.
Write a multiplication to represent this.

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

- 5 Complete the multiplications.
Use the number lines to help you.
Give each answer as an improper fraction and as a mixed number.

a)



$$6 \times \frac{1}{5} = \square = \square$$

b)



$$9 \times \frac{1}{5} = \square = \square$$

- 6 Complete the multiplications.

a) $11 \times \frac{1}{10} = \square = \square$

b) $11 \times \frac{1}{9} = \square = \square$

c) $\frac{1}{8} \times 11 = \square = \square$

d) $11 \times \frac{1}{7} = \square = \square$

e) $11 \times \frac{1}{6} = \square = \square$

What do you notice?

Does this pattern continue?

- 7 Complete the calculations.

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

e) $\frac{1}{8} \times \square = 1\frac{3}{8}$

b) $\square \times \frac{1}{3} = 1$

f) $\square \times \frac{1}{2} = 3\frac{1}{2}$

c) $\square \times \frac{1}{7} = 1$

g) $\square \times \frac{1}{3} = 3\frac{1}{3}$

d) $\frac{1}{7} \times \square = 1\frac{3}{7}$

h) $\frac{1}{4} \times \square = 3\frac{1}{4}$



Multiply non-unit fractions by an integer



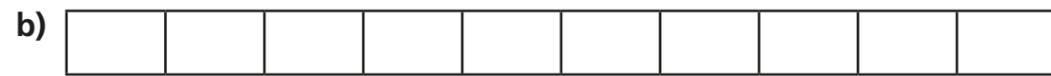
1 Complete the calculations.

Use the bar models to help you.



$$\frac{2}{7} + \frac{2}{7} + \frac{2}{7} = \square$$

$$3 \times \frac{2}{7} = \square$$



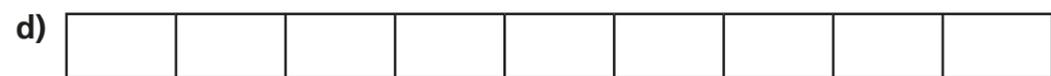
$$\frac{3}{10} + \frac{3}{10} + \frac{3}{10} = \square$$

$$3 \times \frac{3}{10} = \square$$



$$\frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9} = \square$$

$$4 \times \frac{2}{9} = \square$$



$$\frac{4}{9} + \frac{4}{9} = \square$$

$$2 \times \frac{4}{9} = \square$$

What do you notice about parts c) and d)? Talk to a partner.

2 Complete the multiplications.

a) $2 \times \frac{3}{7} = \square$

d) $5 \times \frac{2}{11} = \square$

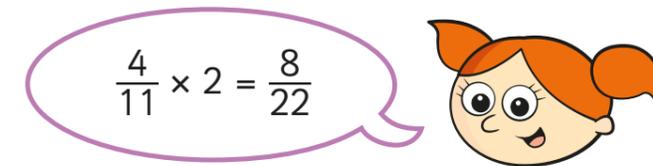
b) $3 \times \frac{3}{11} = \square$

e) $\frac{2}{15} \times 7 = \square$

c) $\frac{2}{11} \times 4 = \square$

f) $\frac{7}{15} \times 2 = \square$

3



Explain the mistake that Alex has made.

4

A cat eats $\frac{2}{15}$ of a bag of biscuits a day.

What fraction of the bag does the cat eat in 4 days?



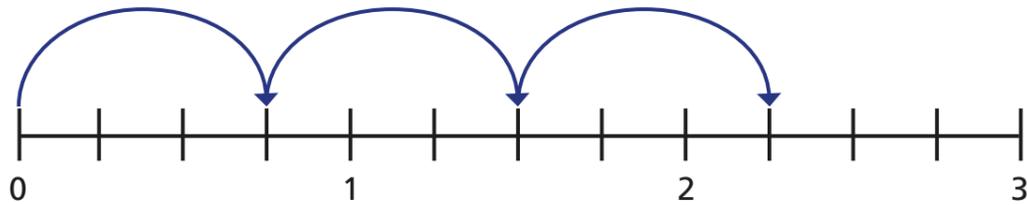
The cat eats \square of the bag in 4 days.

5 Complete the multiplications.

Use the number lines to help you.

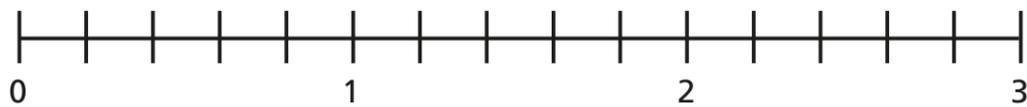
Give each answer as an improper fraction and as a mixed number.

a)



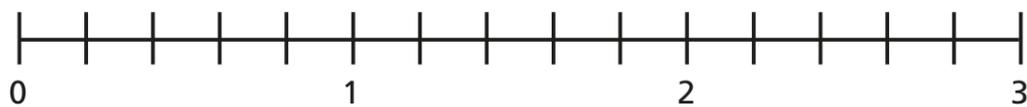
$$3 \times \frac{3}{4} = \boxed{} = \boxed{}$$

b)



$$4 \times \frac{3}{5} = \boxed{} = \boxed{}$$

c)



$$3 \times \frac{4}{5} = \boxed{} = \boxed{}$$



6 Complete the multiplications.

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

b) $4 \times \frac{4}{5} = \boxed{} = \boxed{}$

c) $\frac{2}{7} \times 11 = \boxed{} = \boxed{}$

d) $4 \times \frac{7}{9} = \boxed{} = \boxed{}$

e) $17 \times \frac{2}{11} = \boxed{} = \boxed{}$

f) Describe the pattern you can see in the answers.

g) What could the next multiplication in the pattern be?

Write two possible options.

7 Here are some digit cards.



Use the digit cards to complete the multiplication.

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



Multiply mixed numbers by integers

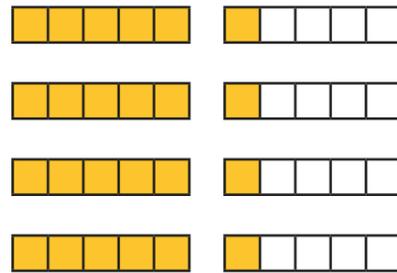
1 Complete the calculations.

a) $4 \times 1\frac{1}{5}$

$4 \times 1 = \square$

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

$\square + \square = \square$

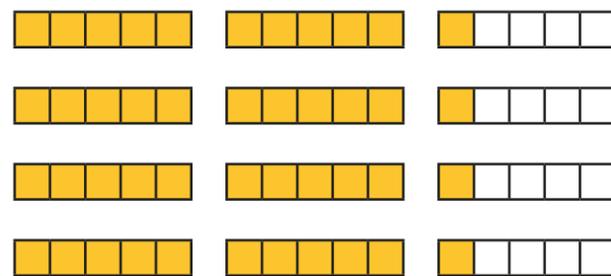


b) $4 \times 2\frac{1}{5}$

$\square \times 2 = \square$

$4 \times \square = \square$

$\square + \square = \square$

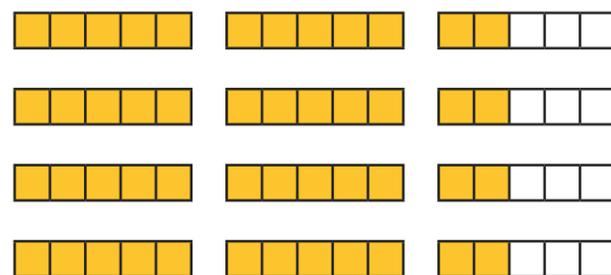


c) $4 \times 2\frac{2}{5}$

$\square \times \square = \square$

$4 \times \square = \square = \square$

$\square + \square = \square$

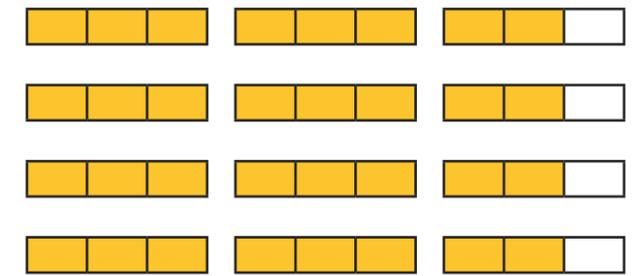


d) $4 \times 2\frac{2}{3}$

$\square \times \square = \square$

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

$\square + \square = \square$



2 Complete the multiplications.

a) $3 \times 8\frac{2}{7} = \square$

d) $4 \times 6\frac{3}{19} = \square$

b) $2 \times 12\frac{2}{11} = \square$

e) $2\frac{2}{25} \times 12 = \square$

c) $6\frac{2}{11} \times 4 = \square$

f) $3\frac{1}{15} \times 8 = \square$

What is the same and what is different about your answers?

3 One bag of potatoes weighs $1\frac{3}{4}$ kg.

How much do 5 bags of potatoes weigh?



\square kg

4 Complete the calculations.

a) $5 \times 2\frac{2}{3} = 10 + \frac{10}{3} = \square$

b) $4\frac{3}{7} \times 5 = 20 + \square = \square$

c) $8 \times 2\frac{5}{12} = \square + \square = \square$

d) $7 \times 3\frac{1}{5} = \square + \square = \square$

e) $4\frac{2}{9} \times 8 = \square + \square = \square$

f) $11 \times 4\frac{3}{10} = \square + \square = \square$

5

$5 \times 3\frac{2}{11}$ is equal to
 $3 \times 5\frac{2}{11}$



Do you agree with Ron? _____

Explain why.

6

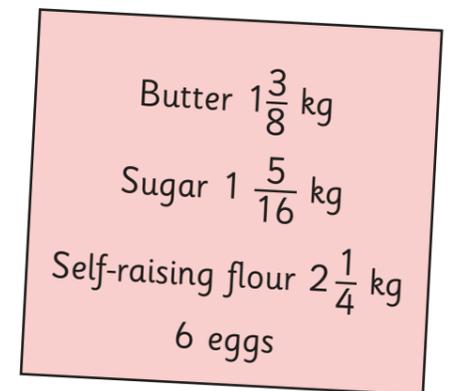
Eva drinks $3\frac{1}{3}$ litres of water a day.

How many litres of water does she drink in a week?

l

7

Here is a recipe for a birthday cake.



a) How much flour is needed for 3 birthday cakes?

kg

b) Dora makes 4 birthday cakes.

How much more butter does she use than sugar?

kg