Mathletics

Series F Student

Fractions, Decimals and Percentages

My name

First edition printed 2009 in Australia.

A catalogue record for this book is available from 3P Learning Ltd.

ISBN 978-1-921860-79-9

Published 3P Learning Ltd

For more copies of this book, contact us at: www.3plearning.com/contact

Designed 3P Learning Ltd

Series F – Fractions, Decimals and Percentages

Contents

Series F – Fractions, Decimals and Percentages

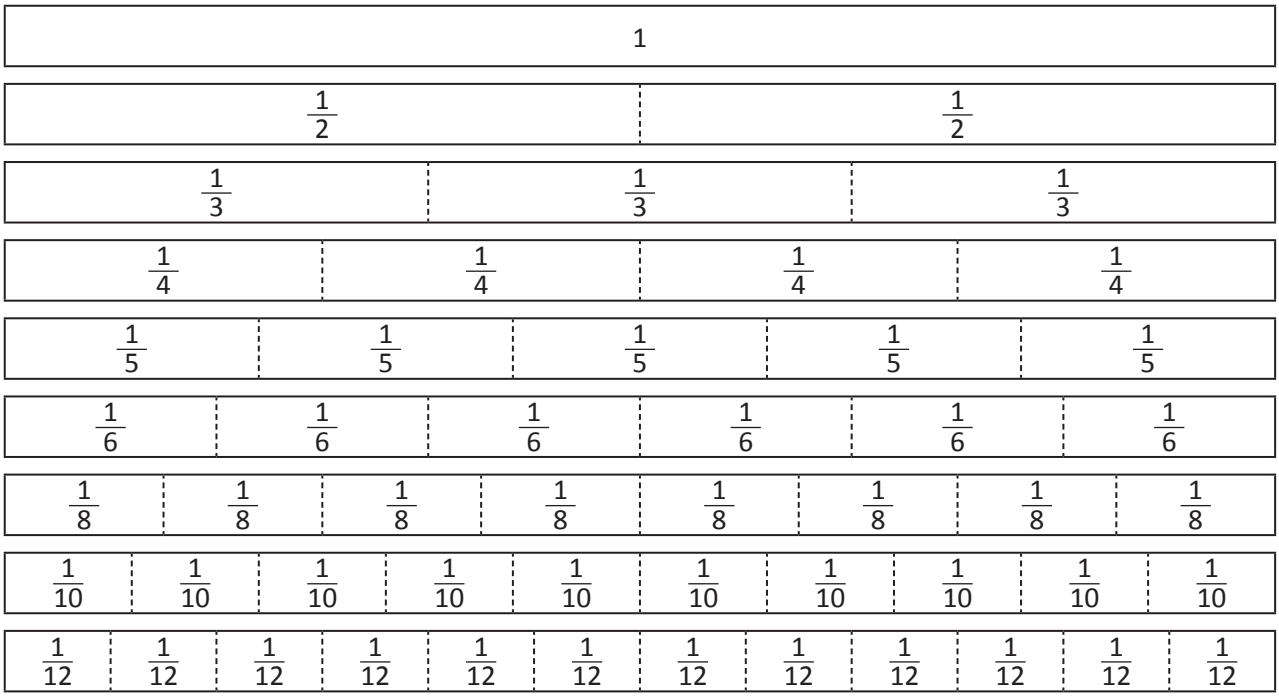
Contents

Series Authors:

Rachel Flenley
Nicola Herringer

Fractions – comparing and ordering fractions

We can use number lines or fraction strips to help us compare and order fractions.



1 **Use the strips above to help you answer the following questions. Circle the correct answers:**

a Which is bigger? $\frac{3}{4}$ or $\frac{4}{8}$ **b** Which is smaller? $\frac{2}{10}$ or $\frac{2}{8}$ **c** Which is smaller? $\frac{2}{4}$ or $\frac{3}{12}$

2 **Use the fraction strips to:**

a Find 3 fractions that are the same as $\frac{1}{2}$

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

b Find 2 fractions that are the same as $\frac{1}{3}$

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

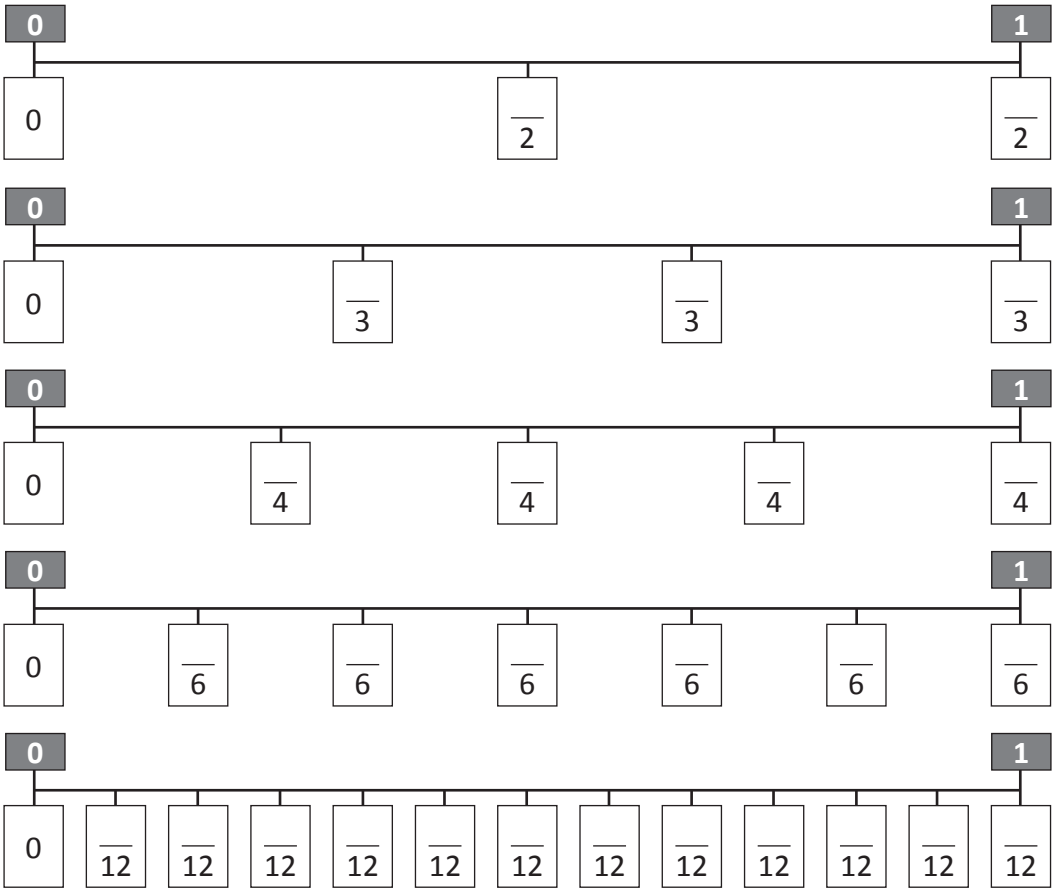
c Find the fraction that is greater than $\frac{2}{3}$ but less than $\frac{3}{4}$

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

3 **Write 2 similar problems for a friend to solve:**

Fractions – comparing and ordering fractions

4 **Label the missing fractions on the number line:**



5 **Are these statements true or false? Use the number lines above to help you with your decision. Remember the large end < eats the large number.**

a $\frac{1}{3} < \frac{1}{2}$ ____ **b** $\frac{1}{4} > \frac{2}{6}$ ____ **c** $\frac{1}{2} > \frac{1}{3}$ ____ **d** $\frac{1}{4} < \frac{5}{12}$ ____

e $\frac{3}{4} > \frac{7}{12}$ ____ **f** $\frac{2}{3} > \frac{3}{4}$ ____ **g** $\frac{7}{12} > \frac{1}{4}$ ____ **h** $\frac{3}{12} > \frac{1}{6}$ ____

6 **Use the number lines above to help you put these fractions in order from smallest to largest:**

a $\frac{8}{12}$ $\frac{1}{2}$ $\frac{2}{6}$ ____ ____ ____

b $\frac{1}{4}$ $\frac{2}{6}$ $\frac{1}{12}$ ____ ____ ____

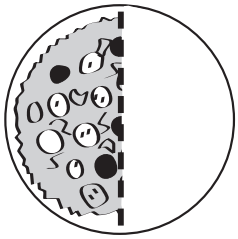
c $\frac{3}{4}$ $\frac{1}{2}$ $\frac{5}{12}$ ____ ____ ____

d $\frac{5}{6}$ $\frac{1}{3}$ $\frac{1}{4}$ ____ ____ ____

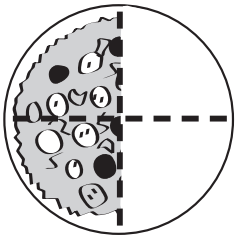
Fractions – equivalent fractions

Different fractions can have the same amount. They are equivalent.

This pizza has been cut into 2 parts. $\frac{1}{2}$ has been eaten.

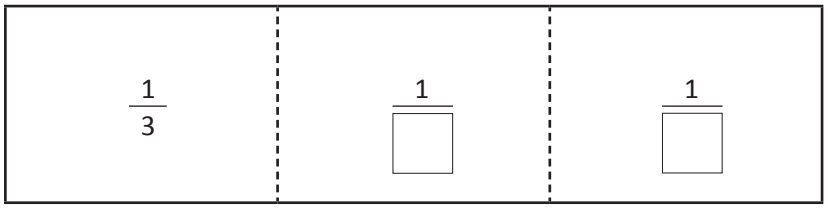


This pizza has been cut into 4 parts. $\frac{2}{4}$ has been eaten.

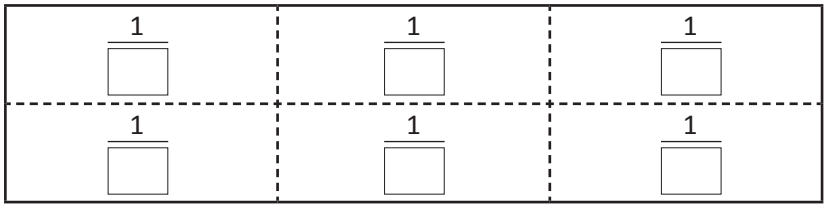


1 **Do this folding paper activity to help you understand how equivalent fractions work:**

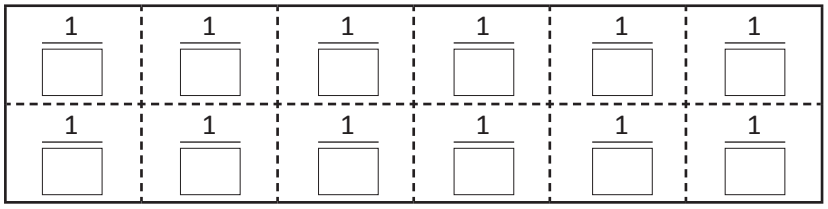
a You'll need a separate rectangular piece of paper similar to the one below. Fold it into 3 equal parts and then unfold it. Label each section with its fraction here:



b Refold your paper into thirds and fold the thirds into halves. Unfold the paper. What fraction does each of the new sections represent? Label them here:



c Fold the paper back again and fold it in half once more. Unfold it and label the fractions here:



2 **Use the diagrams in Question 1 to help you answer the following questions:**

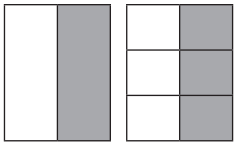
a What fractions can you find that are equivalent to $\frac{1}{3}$? $\frac{\square}{\square}$ $\frac{\square}{\square}$

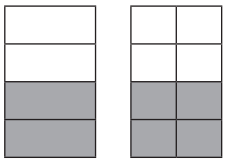
b What fractions can you find that are equivalent to $\frac{8}{12}$? $\frac{\square}{\square}$ $\frac{\square}{\square}$

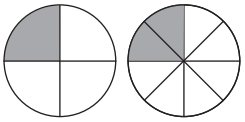
c What other fractions can you think of that might be equivalent to $\frac{6}{12}$?

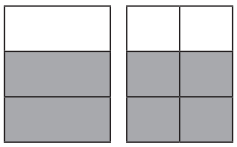
Fractions – equivalent fractions

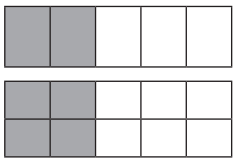
3 **Write the equivalent fraction for each of these:**

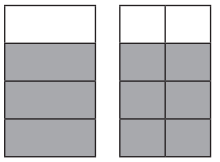
a  $\frac{1}{2} = \frac{\square}{6}$

b  $\frac{2}{4} = \frac{\square}{8}$

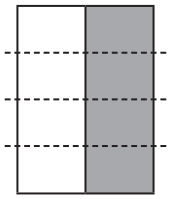
c  $\frac{1}{4} = \frac{\square}{8}$

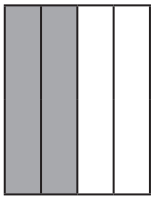
d  $\frac{2}{3} = \frac{\square}{6}$

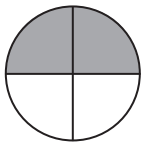
e  $\frac{2}{5} = \frac{\square}{10}$

f  $\frac{3}{4} = \frac{\square}{8}$

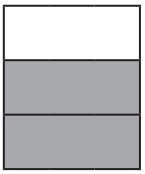
4 **Find an equivalent fraction for each of these. Divide the diagrams to create a different number of equal parts. The first one has been done for you.**

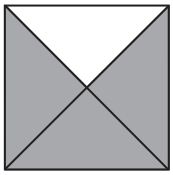
a  $\frac{1}{2} = \frac{4}{8}$

b  $\frac{2}{4} = \frac{\square}{\square}$

c  $\frac{2}{4} = \frac{\square}{\square}$

d  $\frac{2}{3} = \frac{\square}{\square}$

e  $\frac{2}{3} = \frac{\square}{\square}$

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

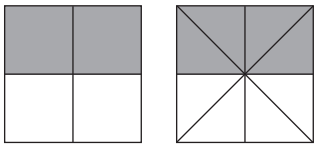
5 **Is $\frac{2}{8}$ equivalent to $\frac{1}{4}$? Use diagrams to help explain your reasoning:**

6 **Is $\frac{2}{3}$ equivalent to $\frac{5}{6}$? Use diagrams to help explain your reasoning:**

Fractions – equivalent fractions

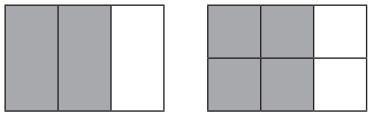
7 **This section has been completed by our work experience boy. How did he go? Give him some feedback:**

a



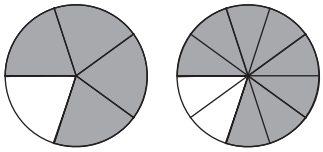
$\frac{2}{4} = \frac{4}{8}$

b



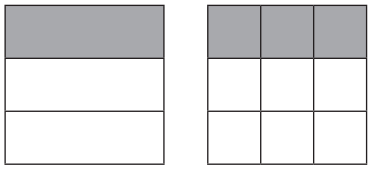
$\frac{2}{3} = \frac{4}{3}$

c



$\frac{4}{5} = \frac{8}{5}$

d

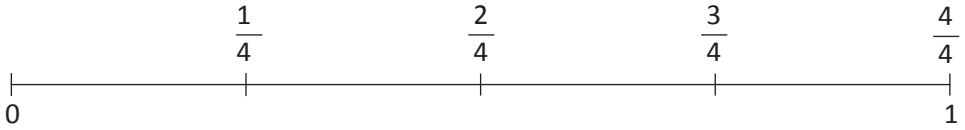


$\frac{1}{3} = \frac{3}{6}$

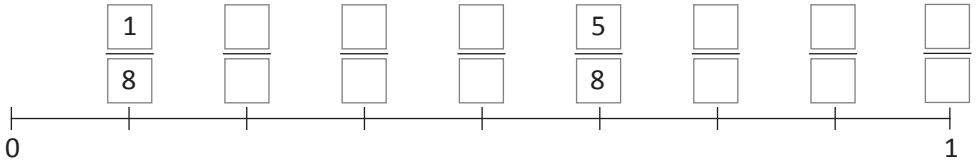
Your feedback:

8 **Complete the number lines. The first has been done for you:**

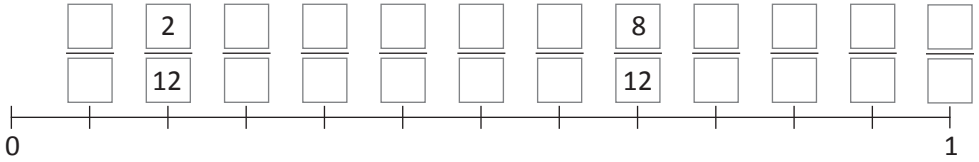
a



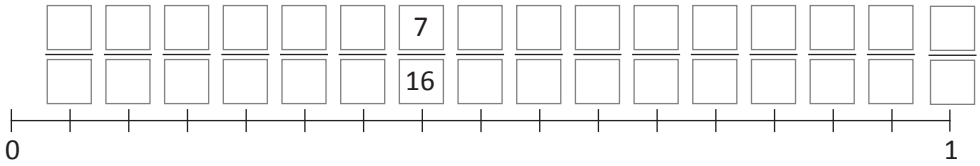
b



c



d



9 **Use the number lines to answer the following:**

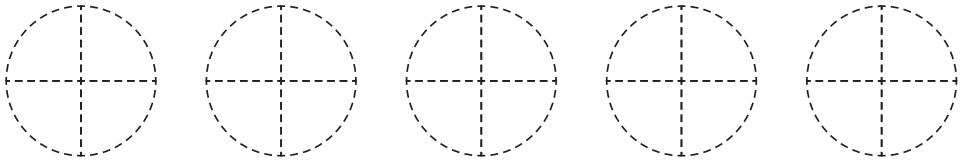
a How many equivalent fractions can you find for $\frac{1}{4}$?

b Did you find a pattern? Can you continue it?

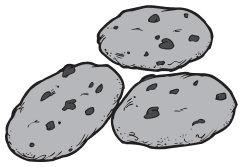
Fractions – mixed numbers activity

A group of friends has formed a Cookie Club. They bake cookies at home and share them in school every Friday. Help the group share the cookies fairly.

You will need a copy of page 9. Cut out the shapes for the following 3 problems and figure out the answers. Once you are happy with your solutions, paste the pieces next to each person and write your answer as a mixed number at the bottom of each page.

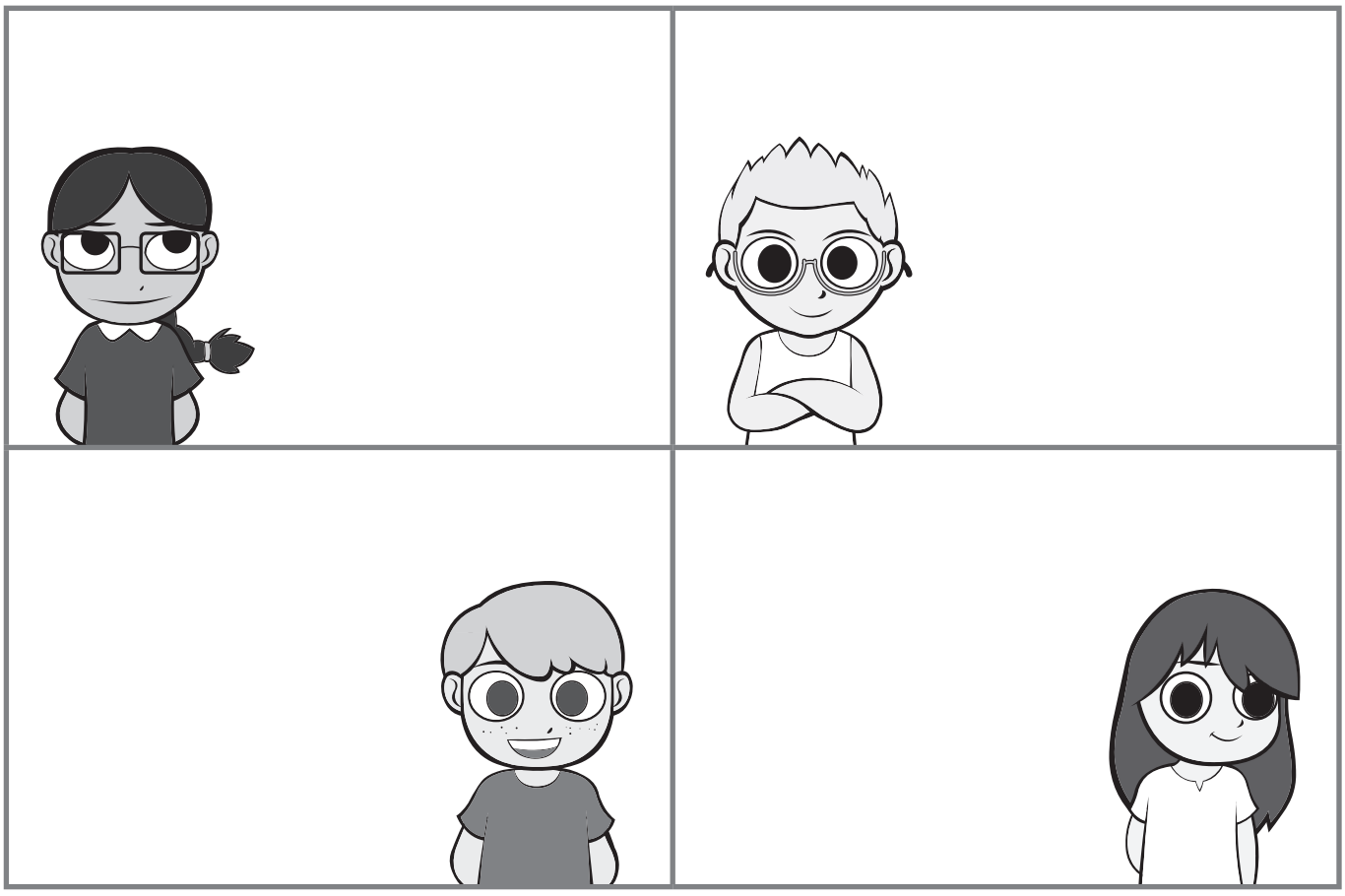


Problem 1: Saqib brought in 5 double choc chip cookies. Show him how he could share these among 4 Cookie Club members.



Hint: Cut each cookie into quarters.

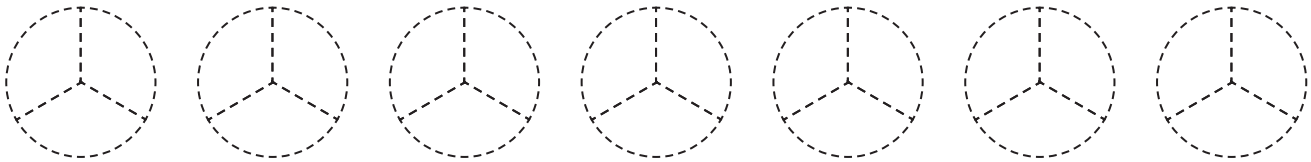
This means there are now a total of _____ pieces to share among 4 members.
Share these pieces evenly among 4 members:



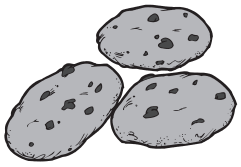
How many cookies does each member get? $\square\frac{\square}{\square}$

Fractions – mixed numbers activity

Problem 2: Vani brought in 7 double choc chip cookies. Show him how he could share these among 3 Cookie Club members.

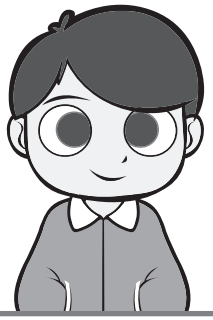


Hint: Cut each cookie into _____ pieces.



This means there are now a total of _____ pieces to share among 3 members.

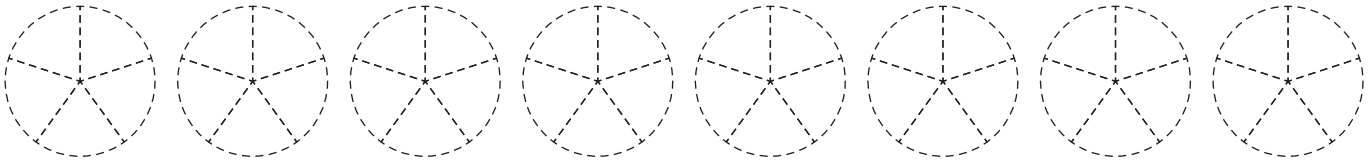
Share these pieces evenly among 3 members:



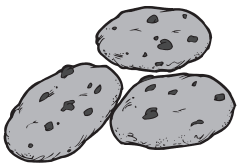
How many cookies does each member get? $\square \frac{\square}{\square}$

Fractions – mixed numbers activity

Problem 3: Rex brought in 8 double choc chip cookies. Show him how he could share these among 5 Cookie Club members.

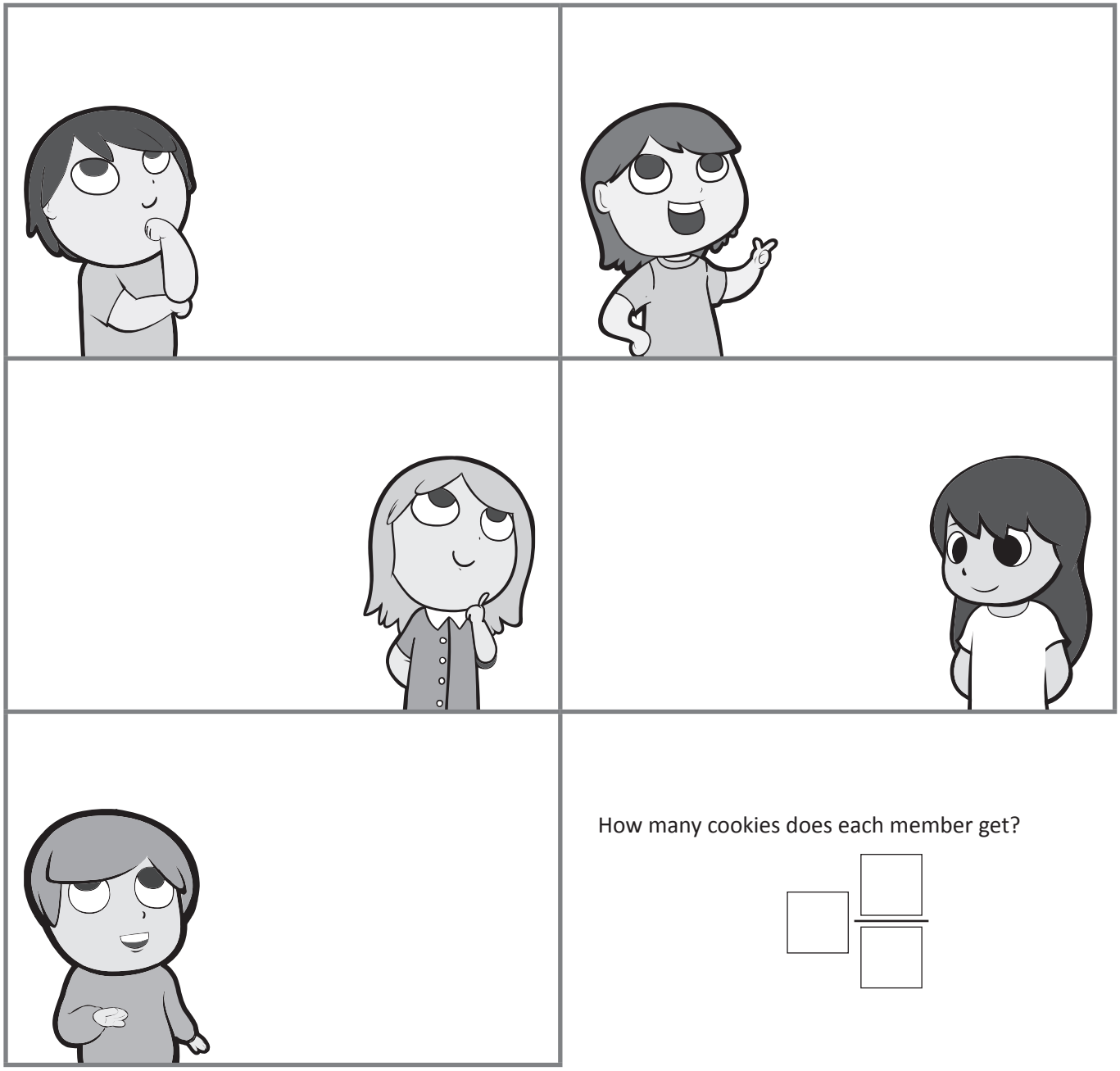


Hint: Cut each cookie into _____ pieces.



This means there are now a total of _____ pieces to share among 5 members.

Share these pieces evenly among 5 members:



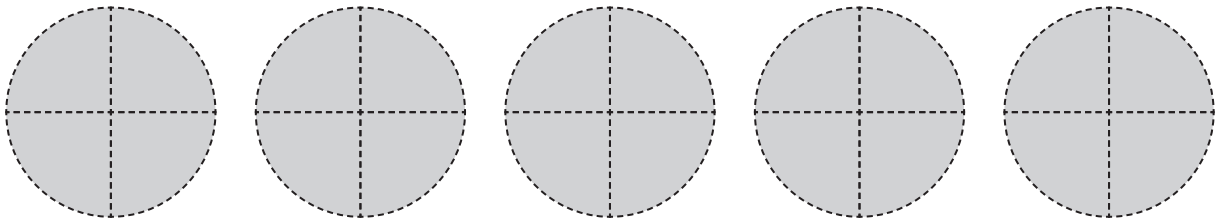
How many cookies does each member get?

Fractions – mixed numbers activity

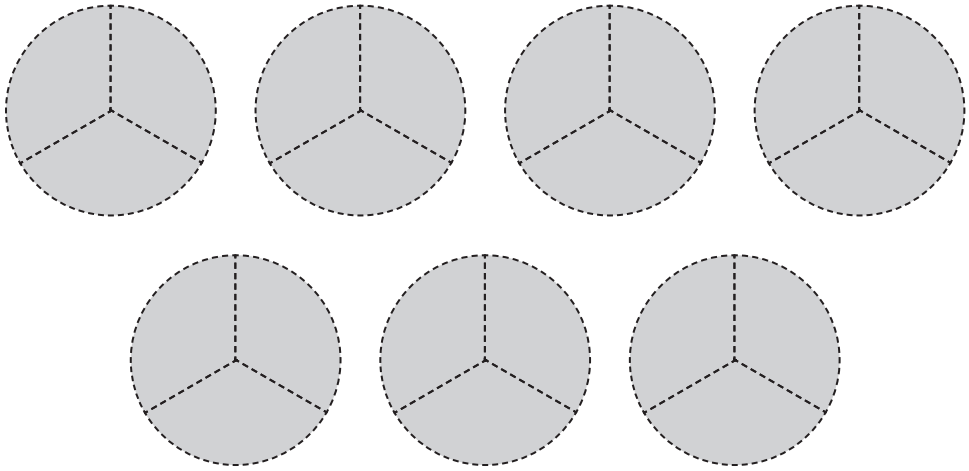
Copy and cut out the following shapes:

copy

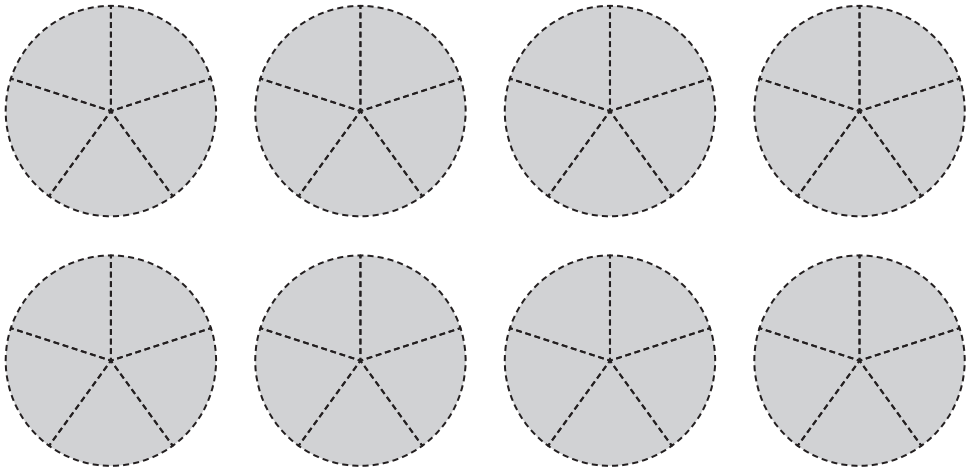
Problem 1



Problem 2



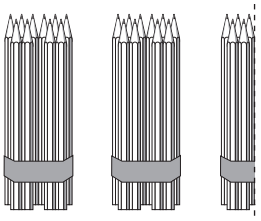
Problem 3



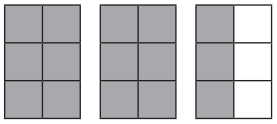
Fractions – mixed numbers and improper fractions

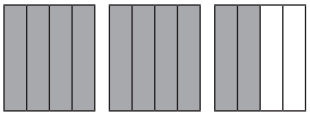
Mixed numbers consist of both a whole number and a fraction.
Ky has 2 full packets of pencils and one half packet of pencils.

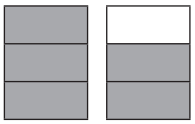
This is shown as $2\frac{1}{2}$

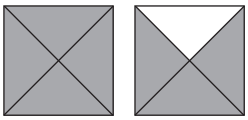


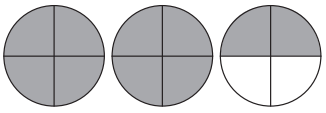
1 **Write a mixed number for each of the shaded sets of shapes:**

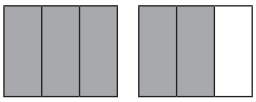
a  = ☐ ☐/☐

b  = ☐ ☐/☐

c  = ☐ ☐/☐

d  = ☐ ☐/☐

e  = ☐ ☐/☐

f  = ☐ ☐/☐

2 **Draw some diagrams or pictures that would represent:**

a

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

b

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

c

1 and $\frac{1}{4}$

d

3 and $\frac{3}{4}$

3 **What might the missing numbers be?**

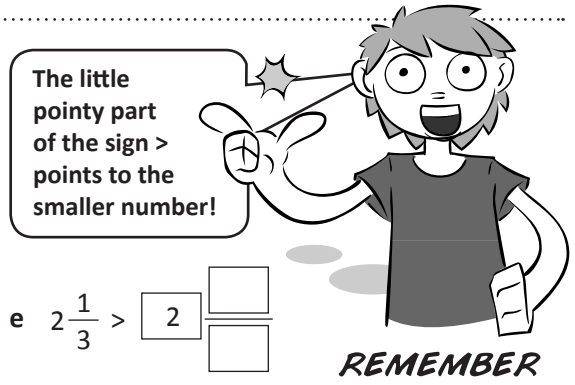
a $1\frac{1}{2} > \boxed{1}\ \frac{\square}{4}$

b $3\frac{1}{3} < \square\ \frac{\square}{\square}$

c $1\frac{1}{5} < \boxed{1}\ \frac{\square}{\square}$

d $2\frac{3}{6} > \boxed{2}\ \frac{\square}{\square}$

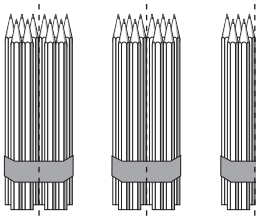
e $2\frac{1}{3} > \boxed{2}\ \frac{\square}{\square}$



Fractions – mixed numbers and improper fractions

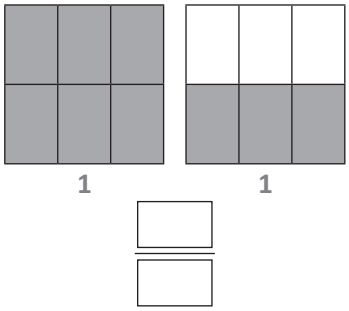
Mixed numbers can also be written as improper fractions.
Look again at Ky's full packets and one half packet of pencils.
This is five halves.

Written as an improper fraction, this is $\frac{5}{2}$.

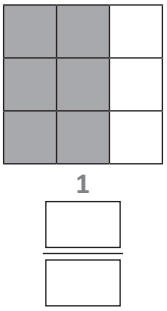


4 **Express these as fractions. Circle any improper fractions:**

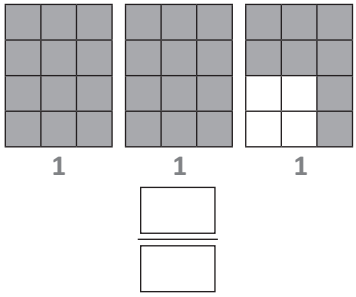
a



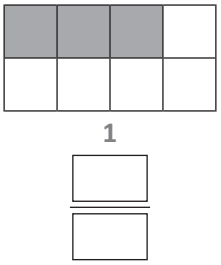
b

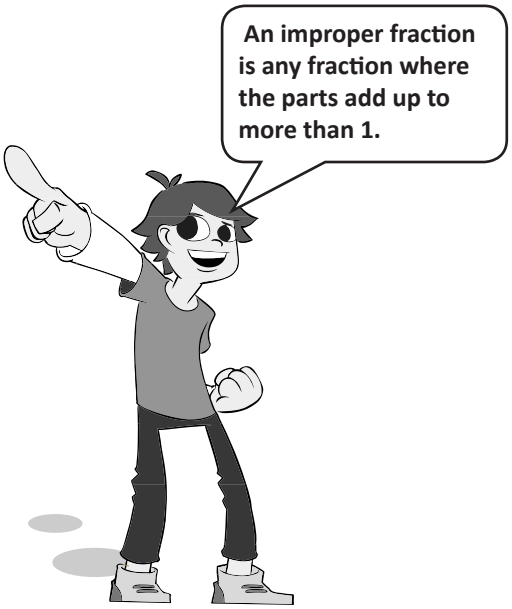


c



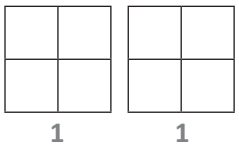
d



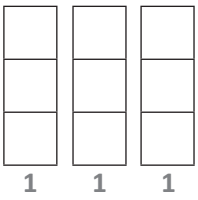


5 **Colour the shapes to create the following improper fractions. Remember each shape is one whole.**

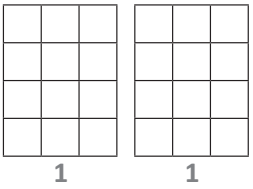
a $\frac{5}{4}$



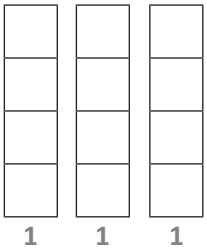
b $\frac{7}{3}$



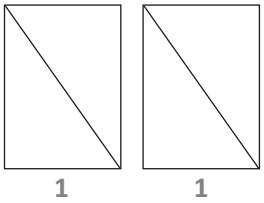
c $\frac{17}{12}$



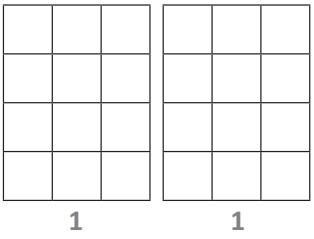
d $\frac{11}{4}$



e $\frac{3}{2}$

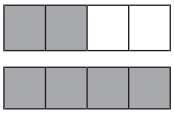


f $\frac{20}{12}$



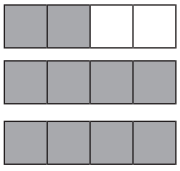
6 **Which is bigger? Circle the larger fraction:**

a $\frac{5}{4}$ or



b $\frac{3}{2}$ or

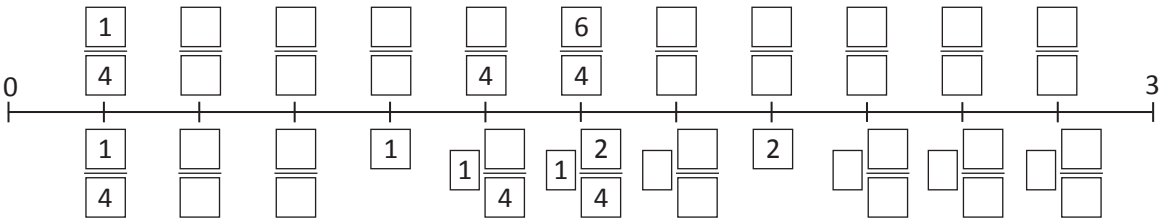
c $\frac{9}{4}$ or



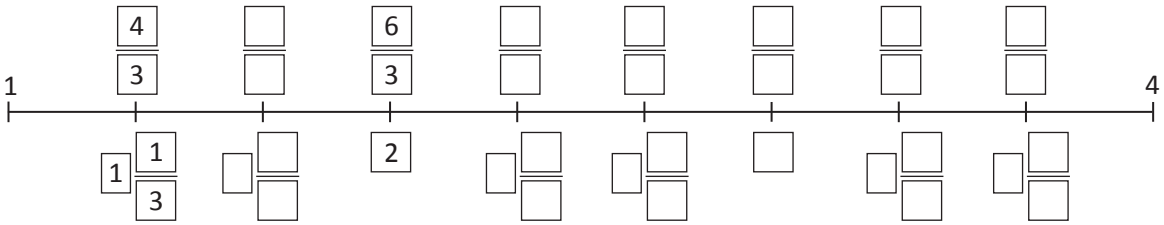
Fractions – mixed numbers and improper fractions

7 **Complete the number lines by filling in the boxes:**

a



b



8 **Use your completed number lines to help you answer these questions:**

a What is $2\frac{1}{4}$ expressed as an improper fraction? $\frac{\square}{\square}$

b Write $\frac{13}{11}$ as a mixed number. $\square\frac{\square}{\square}$

c Find an improper fraction that is greater than $1\frac{1}{3}$ but less than $\frac{10}{3}$. $\frac{\square}{\square}$

d Your teacher offers you the choice between $\frac{10}{4}$ or $2\frac{1}{4}$ hours of litter duty. Are they doing you any favours?

9 **Show the improper fractions. The number line at the top of the page will help:**

a $1\frac{1}{3} = \frac{\square}{3}$

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

c $2\frac{1}{4} = \frac{\square}{4}$

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

e $\frac{7}{\square} = 1\frac{3}{4}$

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

g $\frac{6}{4} = \square\frac{\square}{\square}$

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

i $\frac{\square}{\square} = 2\frac{3}{4}$

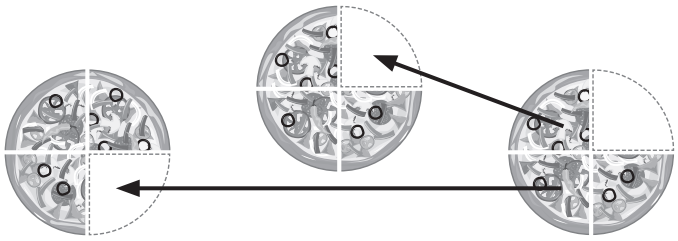
Fractions – multiplying proper fractions and mixed numbers

A proper fraction is a number less than 1. Its numerator (the top number) is less than its denominator (the bottom number).

proper fraction $\frac{3}{4}$ improper fraction $\frac{4}{3}$

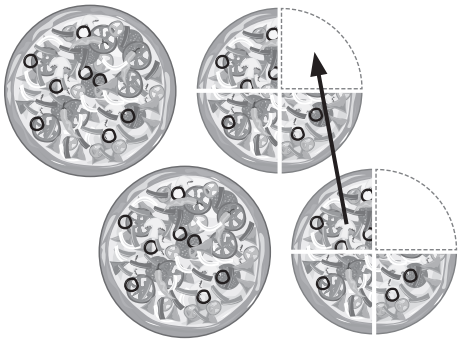
If we multiply a proper fraction by a whole number, we simply multiply the numerator to create an improper fraction, and then divide the total by the denominator.

$$\frac{3}{4} \times 3 = \frac{9}{4} = 2\frac{1}{4}$$



To multiply a mixed number by a whole number, first convert the mixed number into an improper fraction, then multiply the numerator by the whole number and, finally, divide the total by the denominator.

$$1\frac{3}{4} \times 2 = \frac{7}{4} \times 2 = \frac{14}{4} = 3\frac{1}{2}$$



1 **Multiply these proper fractions and mixed numbers:**

a $\frac{3}{4} \times 2 = \frac{\square}{4} = \square\frac{\square}{\square}$

b $\frac{2}{3} \times 4 = \frac{\square}{3} = \square\frac{\square}{\square}$

c $\frac{2}{5} \times 7 = \frac{\square}{5} = \square\frac{\square}{\square}$

d $\frac{3}{7} \times 6 = \frac{\square}{7} = \square\frac{\square}{\square}$

e $2\frac{1}{4} \times 2 = \frac{\square}{4} \times 2 = \frac{\square}{4} = \square\frac{\square}{\square}$

f $3\frac{1}{3} \times 4 = \frac{\square}{3} \times 4 = \frac{\square}{3} = \square\frac{\square}{\square}$

g $2\frac{2}{5} \times 3 = \frac{\square}{5} \times 3 = \frac{\square}{5} = \square\frac{\square}{\square}$

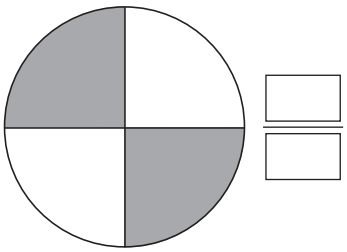
h $1\frac{2}{7} \times 2 = \frac{\square}{7} \times 2 = \frac{\square}{7} = \square\frac{\square}{\square}$

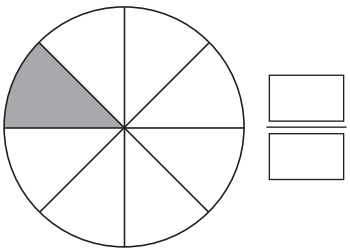
Find the fraction

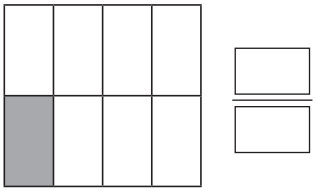
solve

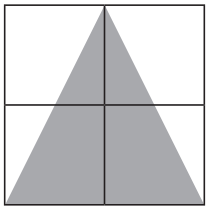
What to do

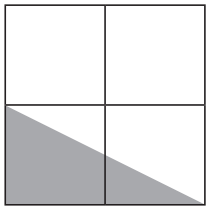
Your job is to work out what fraction of each shape is shaded. Some of them are simple to work out, others will take a little more thinking.

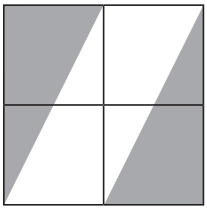


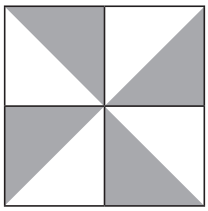


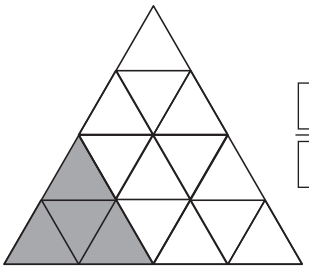


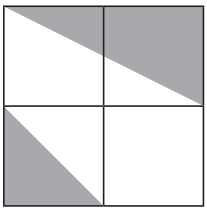


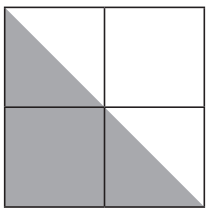


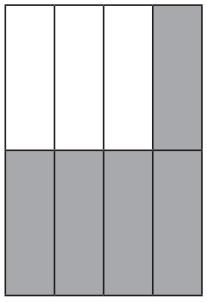


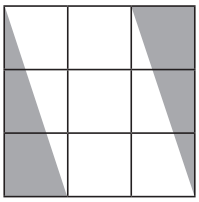








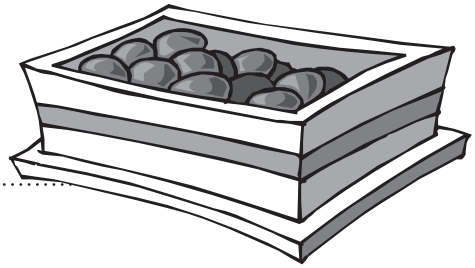




Mmmmm, chocolate … apply

Getting ready

In this activity you will use your knowledge of fractions to share chocolates amongst a family.



What to do

Mum gave you and your (imaginary) brothers and sisters a box of chocolates to share (also imaginary, unfortunately). She has decided to share them out based on how well you all cleaned your rooms. There are 72 chocolates in the box. Follow the directions to find how many you each receive:

a Your sister Sarah can have $\frac{1}{4}$ of the chocolates. How many chocolates is this?

b Your sister Claire wished she had known this condition when she cleaned up her room. She can only have $\frac{1}{12}$ of the chocolates. How many is this?

c Your brother Angus did a brilliant job on his room and is entitled to $\frac{2}{6}$ of the chocolates. How many is this?

d You get the rest! How many do you get?

e What is your share expressed as a fraction?

What to do next

Write an addition sentence to show how the chocolates were shared.

Now write a fraction addition sentence to show how they were shared.

$$\frac{\square}{72} + \frac{\square}{72} + \frac{\square}{72} + \frac{\square}{72} = \frac{\square}{72}$$

Equivalent fraction snap

apply

Getting ready

Play this game with a friend. You'll need two sets of these cards. Make two copies of this page, cut out the cards and combine the two sets into one pile.

What to do

Player 1 deals the cards face down between the two players. Player 2 starts the game by placing a card in the centre. Players take turns in turning over the top card on their pile and placing it in the centre pile. Call, "Snap!" and take the centre pile if the card is identical to or an equivalent fraction to the card already face up.

The four wild cards can be used to make a Snap! When playing a wild card, you must name a correct equivalent fraction. The person with all the cards at the end is the winner.

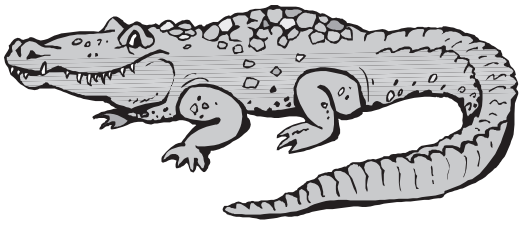
$\frac{2}{3}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{4}{8}$
$\frac{?}{?}$ WILD CARD	$\frac{4}{6}$	$\frac{2}{4}$	$\frac{3}{12}$
$\frac{4}{16}$	$\frac{9}{12}$	$\frac{?}{?}$ WILD CARD	$\frac{3}{4}$
$\frac{2}{8}$	$\frac{8}{12}$	$\frac{10}{20}$	$\frac{50}{100}$
$\frac{12}{16}$	$\frac{25}{100}$	$\frac{11}{44}$	$\frac{75}{100}$

Feeding time

apply

Getting ready

Emma is confused. She understands mixed numbers but not improper fractions. Her dad has asked her to help out at their wildlife zoo but he has used improper fractions in his directions.



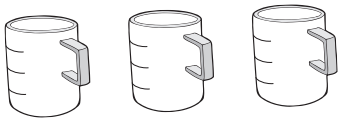
What to do

Shade the correct amounts on the containers, then convert the improper fractions to mixed numbers for Emma so the animals can be fed correctly.

Dear Em,

Off to see a man about an iguana. Be a love and feed the animals for me, will you? Back for the afternoon feed.

At 6 am, feed the lambs $\frac{6}{4}$ cups of pellets.

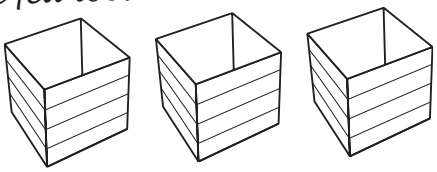


_____ cups

At 9 am, give Cuddli the croc her $\frac{5}{2}$ buckets of steak. (Remember Cuddli considers your hand to be one of her favourite food groups).

_____ buckets

At 11 am, feed the snakes their $\frac{7}{4}$ boxes of rats. Stop grimacing. Snakes deserve to be fed too.



_____ boxes

At midday, feed the pigs their $\frac{5}{3}$ buckets of mushrooms and grass. They won't be out for it till the evening but they want it now. Who would have thought pigs would be so precious?

Go figure…

_____ buckets

Dad xxx

Four in a row fractions

apply

Getting ready

This is a game for 2 to 4 players. You will need the playing board below, 3 dice and each player will need a different set of coloured counters.

What to do

The aim of this game is to claim 4 squares in a row by covering the mixed numbers with your counters. You can go horizontally, vertically or diagonally.

Player 1 rolls 3 dice and creates a mixed number with the 3 numbers. For example, if a player rolled a 3, 4 and 6, they could put their counter on $3\frac{4}{6}$ or $6\frac{3}{4}$ or $4\frac{3}{6}$.

If a player cannot make a fraction to claim or it is already claimed, they miss a turn.

Note: Make sure the numerator is smaller than the denominator.

$3\frac{3}{5}$	$1\frac{1}{5}$	$6\frac{1}{3}$	$5\frac{1}{3}$	$1\frac{1}{2}$	$3\frac{4}{5}$	$4\frac{1}{4}$	$5\frac{2}{3}$
$3\frac{1}{3}$	$3\frac{2}{3}$	$5\frac{1}{3}$	$2\frac{2}{4}$	$4\frac{2}{5}$	$1\frac{3}{4}$	$2\frac{3}{6}$	$6\frac{2}{5}$
$4\frac{3}{4}$	$1\frac{4}{6}$	$3\frac{4}{5}$	$1\frac{1}{4}$	$5\frac{1}{5}$	$2\frac{1}{6}$	$5\frac{2}{6}$	$4\frac{2}{6}$
$3\frac{3}{4}$	$2\frac{2}{3}$	$4\frac{4}{4}$	$6\frac{1}{6}$	$1\frac{1}{3}$	$4\frac{1}{5}$	$3\frac{3}{6}$	$1\frac{2}{3}$
$2\frac{1}{2}$	$2\frac{3}{4}$	$4\frac{4}{6}$	$6\frac{5}{6}$	$1\frac{5}{6}$	$3\frac{1}{6}$	$5\frac{2}{5}$	$1\frac{1}{6}$
$2\frac{1}{3}$	$6\frac{4}{6}$	$4\frac{4}{5}$	$6\frac{3}{6}$	$2\frac{2}{5}$	$5\frac{4}{5}$	$6\frac{3}{6}$	$1\frac{2}{4}$
$4\frac{3}{6}$	$2\frac{3}{4}$	$5\frac{4}{6}$	$6\frac{2}{6}$	$1\frac{1}{5}$	$3\frac{5}{6}$	$6\frac{3}{4}$	$5\frac{5}{6}$

Fractions, decimals and percentages – tenths

Decimal fractions also express parts of a whole. This strip has been divided into 10 equal parts. Three out of ten or $\frac{3}{10}$ is shaded.

$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

We can also express this as 0.3. There are no whole ones and 3 tenths.

1 **Write the shaded common fraction and its equivalent decimal fraction:**

a

$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

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

b

$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

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

c

$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

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

2 **Shade the fraction strips to match the common fraction or decimal fraction:**

a 0.8

b $\frac{5}{10}$

c 0.4

d 0.9

3 **Use a ruler and a pencil to divide the wholes into tenths. Shade the given amounts and express as decimals:**

a

$\frac{4}{10}$ $\square$. $\square$

b

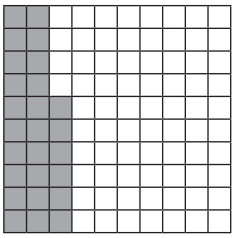
$\frac{8}{10}$ $\square$. $\square$

c

$\frac{5}{10}$ $\square$. $\square$

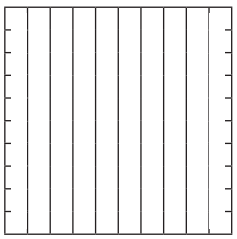
Fractions, decimals and percentages – tenths and hundredths

A hundredth is a tenth of a tenth.
Here, 26 hundredths have been shaded.
We write this as **0.26**
There are no ones, 2 tenths and 6 hundredths.



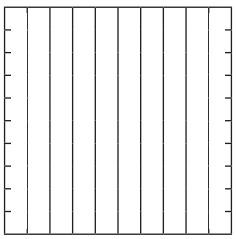
1 **Use a ruler and a pencil to divide these into hundredths and then shade the specified amounts:**

a



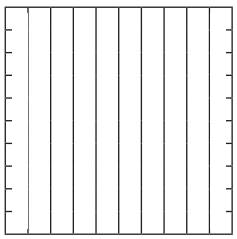
$\frac{61}{100}$ 0 •

b



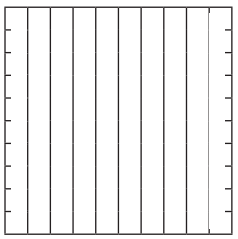
$\frac{82}{100}$ 0 •

c



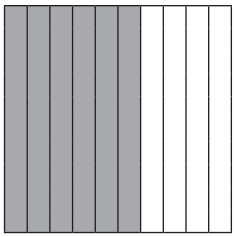
$\frac{55}{100}$ 0 •

d

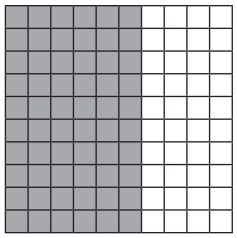


$\frac{27}{100}$ 0 •

Six tenths are shaded here.



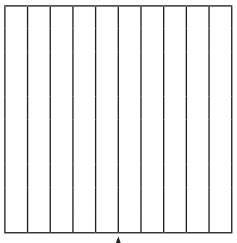
Sixty hundredths are shaded here.



What do you notice? Sixty hundredths and six tenths have the same value 0.60 = 0.6

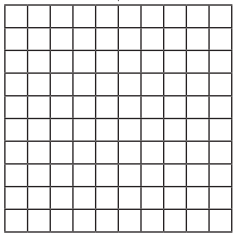
2 **Check that the above statement is true by shading the amounts. Are they the same?**

a

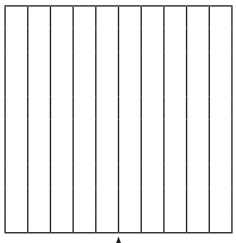


4 tenths

40 hundredths

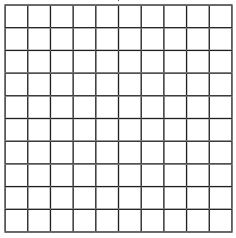


b

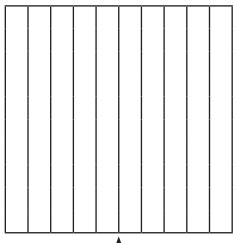


6 tenths

60 hundredths

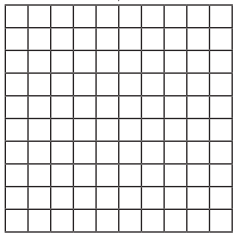


c

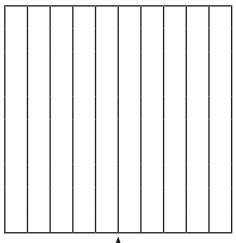


8 tenths

80 hundredths

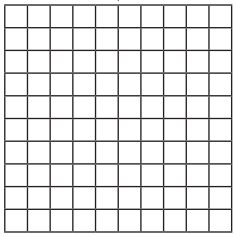


d



2 tenths

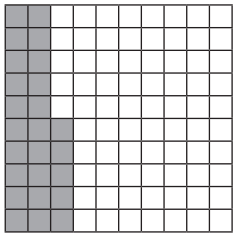
20 hundredths



Fractions, decimals and percentages – tenths and hundredths

3 **Complete these statements. The first one has been done for you.**

a

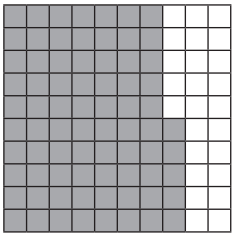


This is $\frac{25}{100}$

It can be renamed as:

$\frac{2}{10}$ and $\frac{5}{100}$

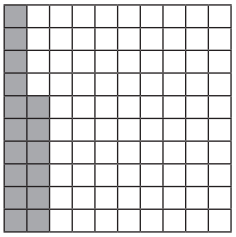
b



This is $\frac{75}{100}$

It can be renamed as:

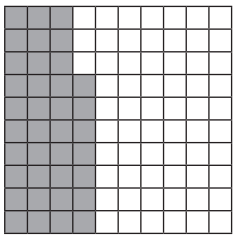
c



This is $\frac{16}{100}$

It can be renamed as:

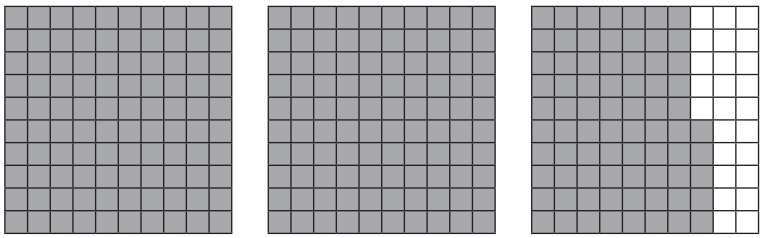
d



This is $\frac{37}{100}$

It can be renamed as:

e

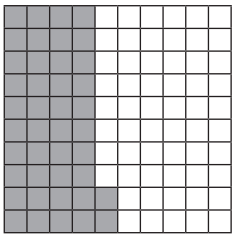


This represents 2 wholes and $\frac{75}{100}$

It can be renamed as:

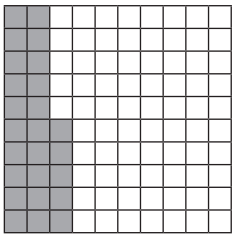
4 **Complete the missing information:**

a



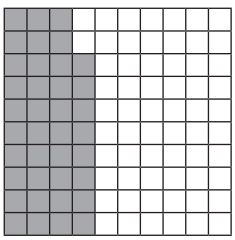
$\frac{42}{100} = \frac{4}{10} + \frac{2}{100} =$ ☐.☐☐

b



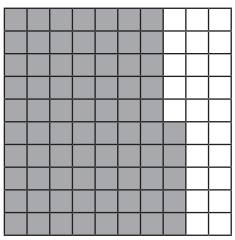
$\frac{\square}{100} = \frac{\square}{10} + \frac{\square}{100} =$ ☐.☐☐

c



$\frac{\square}{100} = \frac{\square}{10} + \frac{\square}{100} =$ ☐.☐☐

d



$\frac{\square}{100} = \frac{\square}{10} + \frac{\square}{100} =$ ☐.☐☐

Fractions, decimals and percentages – place value to thousandths

A thousandth is a tenth of a hundredth.

Ones		Tenths	Hundredths	Thousandths
2	•	2	5	6

This number has 2 ones, 2 tenths, 5 hundredths and 6 thousandths.

1 **Write these numbers in the place value chart:**

	Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
a 5 tens, 3 ones and 8 tenths				•			
b 7 hundreds, 8 tens, 4 ones, 2 tenths and 3 hundredths				•			
c 9 tens, 8 tenths and 4 thousandths				•		0	
d 6 hundreds, 8 tenths, 4 hundredths and 3 thousandths			0	0 •			
e 4 ones, 9 tenths and 8 hundredths				•			
f 3 ones, 4 tenths and 2 hundredths				•			
g 2 tens, 3 ones, 4 hundredths and 6 thousandths				•	0		
h 8 thousandths				•	0	0	

2 **Answer true or false to the following questions. Score 0.5 points for each correct answer.**

	T or F	Score
a The value of 4 in 56.48 is 4 hundredths.		
b The value of 3 in 38.65 is 3 tens.		
c The value of 7 in 0.75 is 7 hundredths.		
d Thomas thought of a decimal number between 5.61 and 5.91. The number could have been 5.64.		
e The value of 8 in 9.998 is 8 thousandths.		
f 97.3 is 9 tens, 7 ones and 3 hundredths.		
	Total	

Fractions, decimals and percentages – place value to thousandths

When comparing and ordering decimals, the place value of a digit is crucial. The further the digit is to the left, the greater its value.

Even though one thousandth sounds big, it is actually very small. Remember, one thousandth is just a single piece of a whole divided into a thousand parts. One tenth is actually one hundred times bigger than one thousandth.

3 **Which is bigger? Circle the correct answer:**

a 0.7 or 0.07

b 0.56 or 6 tenths

c 7.5 or $\frac{7}{10}$

d 15 or 0.15

e $\frac{1}{2}$ or 0.25

f 35 or 0.035

4 **Use < or > or = to show the relationship between the two numbers:**

a 6.89 _____ 6.76

b 70.908 _____ 7.908

c 9.08 _____ 9.8

d 5.098 _____ 5.98

e 0.56 _____ 0.560

f 11.80 _____ 11.8

5 **This chart shows the vital statistics of some Roosters Rugby Club players.**

Name	Height	Weight
Harry	2.06 m	79.054 kg
Phillip	1.96 m	110.652 kg
Ali	1.73 m	79.934 kg
Sebastian	1.84 m	88.91 kg
George	1.81 m	99.552 kg
Joe	2.01 m	118.236 kg
Connor		65.789 kg

a Who is tallest? Who is shortest?

_____

b Put these players in order of lightest to heaviest: Ali, George, Sebastian:

_____

c Who do you want to throw the ball over the other players? (It would help to be really tall.)

_____

d Who would you least like to have tackle you? Why?

_____

e Connor twirled out of the club before his height was measured. We know he is taller than Ali and shorter than Sebastian. What could his height be? Add it to the table.

Fractions, decimals and percentages – ordering decimals to 3 decimal places

To compare and order decimals, always start by looking at the digit on the left side of the number.

For example, if we want to know which is bigger 5.2 or 3.9, we look at the left digit in each number and can see that 5 is bigger than 3, so 5.2 is bigger than 3.9.

We only need to look at the next digit if the first is the same. So if we are comparing 7.66 and 7.83, we can see that the first digits in each number are the same, so we need to compare the following digits. As 8 is bigger than 6, we know that 7.8 is bigger than 7.6. The third digit doesn't matter.

If the first two digits are the same, then you need to move on to compare the third, and so on.

1 **Order these decimals from smallest to largest:**

a 3.04 4.03 3.34 3.43 3.4

b 7.673 7.376 7.637 7.763 7.736

c 89.978 98.987 98.899 89.879 89.789

2 **True or false?**

a 3.034 > 3.043 ☐

b 732.35 < 732.53 ☐

c 0.010 < 0.009 ☐

d 13.200 = 13.2 ☐

e 17.171 < 17.717 ☐

f 2,020.202 > 2,020.022 ☐

Fractions, decimals and percentages – rounding decimals

Rounding decimals follows the same rules as rounding any number. If the key digit is between 1 and 4 you round down; if it is between 5 and 9 you round up.

The key digit will be the one to the right of the digit to which you are rounding. If you a rounding a number to the nearest one, you focus on the 'tenth' digit; if rounding to one decimal place (the nearest tenth), then the 'hundredth' digit is the key one. So,

3.48 rounded to the nearest one is 3 as the '4' rounds down.

3.48 rounded to one decimal place is 3.5 as the '8' rounds up.

1 **Round the following numbers to the nearest one:**

a 4.29 ☐ **b** 8.72 ☐ **c** 27.51 ☐

d 75.48 ☐ **e** 999.52 ☐ **f** 7,687.73 ☐

2 **Round the following numbers to one decimal place (the nearest tenth):**

a 9.36 ☐ **b** 0.45 ☐ **c** 69.29 ☐

d 86.66 ☐ **e** 538.44 ☐ **f** 2,972.86 ☐

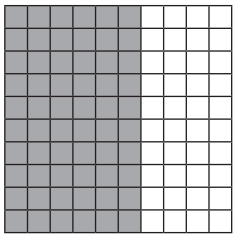
3 **The following numbers have been rounded to one decimal place. What number with two decimal places might they have been originally?**

a 8.3 ☐ **b** 17.8 ☐ **c** 67.1 ☐

d 569.6 ☐ **e** 3,829.4 ☐ **f** 72,853.9 ☐

Fractions, decimals and percentages – percentages

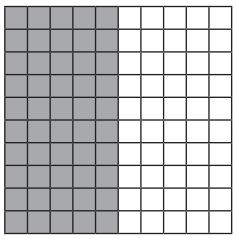
Percent means part per hundred and is expressed using the symbol %.
Here, 60% has been shaded grey.
It is the same as 60 hundredths. $\frac{60}{100} = 0.60 = 60\%$



1 **Think of at least five times you see the % sign or use percentages:**

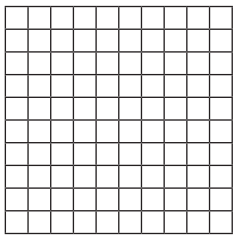
2 **Fill in the missing values and shade the grids:**

a



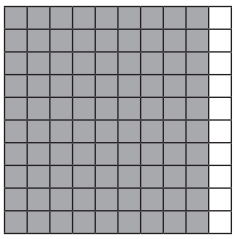
$\frac{50}{100}$	0.	%

b



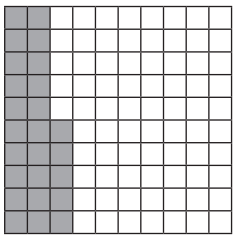
$\frac{30}{100}$	0.3	%

c



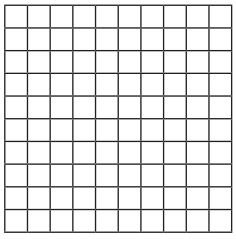
——	0.	90%

d



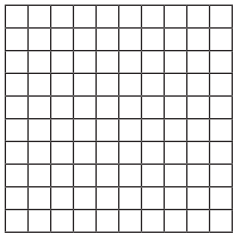
——	0.25	%

e



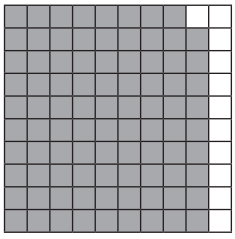
$\frac{45}{100}$	0.	%

f



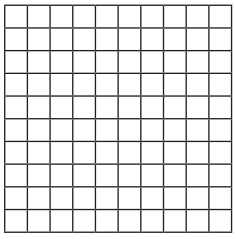
——	0.75	%

g



——	0.	89%

h



——	0.42	%

3 **Are these statements correct?**

a 75% is greater than 0.5 ☐

b One quarter is the same as 50% ☐

c 45% is greater than 0.5 ☐

d 0.42 is equivalent to 425 ☐

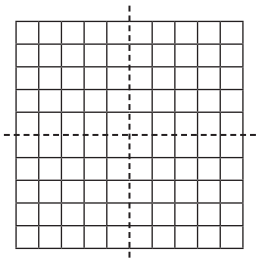
e You score 100% on a test. Your friend scores 20/20. You both received the same score. ☐

Fractions, decimals and percentages – percentages

It is useful to know some common percentages such as 25%, 50% or 75%.

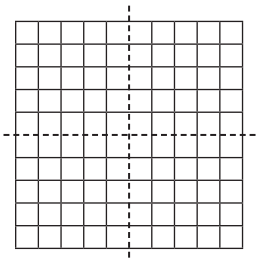
4 **Shade the grids and show the following fractions by completing the missing information:**

a



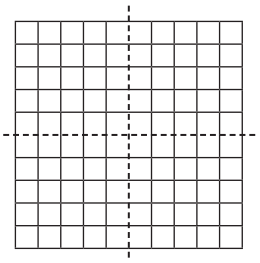
$\frac{1}{4}$	0.25	25%

b



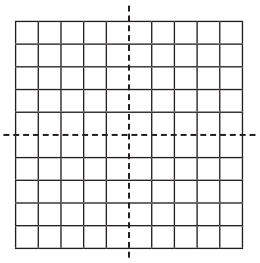
$\frac{1}{2}$	0.	%

c



$\frac{3}{4}$	0.	%

d



$\frac{4}{4}$	.	%

5 **Shade these shapes to show the following percentages:**

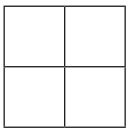
a

50%

b

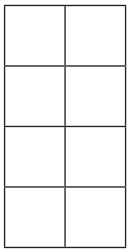
25%

c



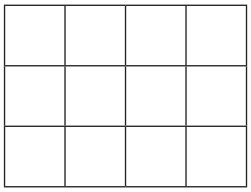
75%

d



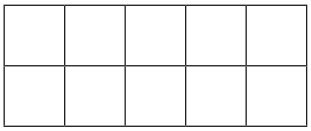
50%

e



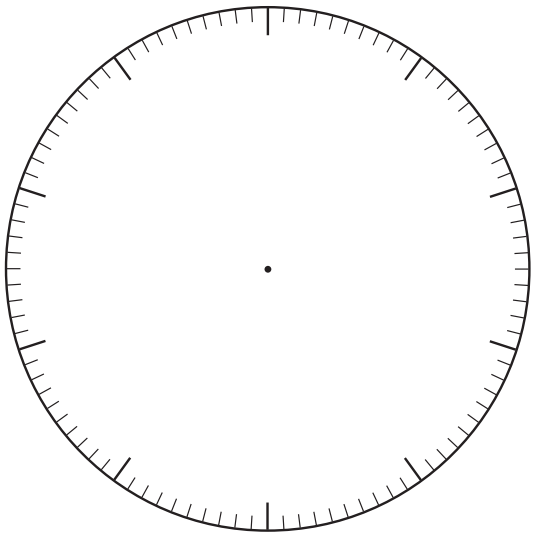
25%

f



100%

6 **James goes on holiday. He has £100 spending money and spends it as outlined below. Show this on the pie graph and label each section of the pie with the correct percentage:**



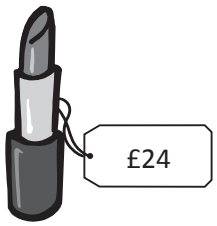
Fractions, decimals and percentages – introducing percentages

1 **Often you can see percentages in shops when it is sale time. Work out the sale price of these items:**

a

Sale price: ☐

b



Sale price: ☐

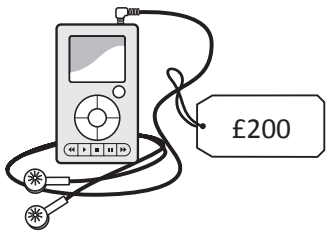
c

Sale price: ☐

d

Sale price: ☐

e



Sale price: ☐

2 **Pie charts are used to show information clearly and are often colour coded. Complete the pie charts according to the information. Each whole pie chart is 100% and each segment is 10%. Choose a colour for each bit of information.**

a 100 people were surveyed about their favourite weekend activities.

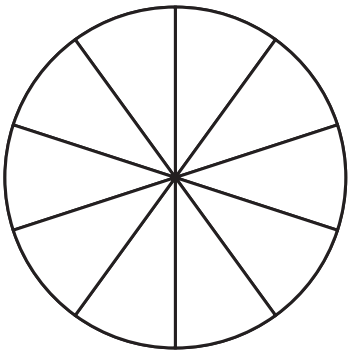
☐ Go to a restaurant 30%

☐ Go to the beach 10%

☐ See a movie 20%

☐ Go shopping 20%

☐ Play sport 20%



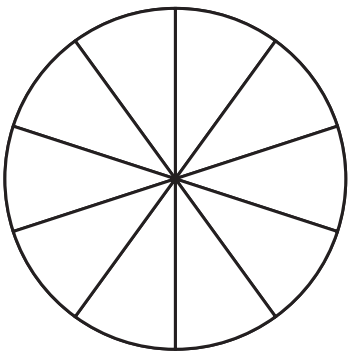
b 200 people were surveyed about their favourite food.

☐ Pizza 80

☐ Hamburgers 40

☐ Pasta 60

☐ Curry 20



A percentage is an amount out of 100, so $\frac{60}{200}$ would be the same as $\frac{30}{100}$.

Fractions, decimals and percentages – word problems

1 **Solve these word problems:**

a In a Year 5 class, half of the pupils walk to school, 30% take the bus and the remaining children walk. Express the fraction of the class who walk as a decimal.

b In a talent contest, Jerry gets $\frac{2}{5}$ of the vote. What percentage of people didn't vote for him?

c I share an extra large pizza with my friend for lunch. I eat $\frac{3}{5}$ of it, and he eats $\frac{3}{10}$. What percentage of the pizza is left?

d In a sale a coat is marked as 50% off. If it's original price was £45.00, how much does it cost in the sale?

e A carpenter is making a piece of furniture. He needs 6 pieces of wood 250 mm long. If he cuts them from a piece 2,000 mm long, what fraction of this piece will be left over?

f I love chocolate. My mum buys a big bar and says I can have $\frac{1}{8}$, 10% or 0.12 of the bar. Which of these will give me the most chocolate?

g In an interview an athlete says "I put 110% effort into that race." What is wrong with that statement?

_____

Match 'n' snap

apply

Getting ready

This is a game for 2 or more players. You will race against each other to come up with equivalent fractions, decimals or percentages to match those on cards. You'll need one copy of this page and one copy of page 31 between you.

What to do

Cut out the playing cards, mix them up and put them face down in a pile.

Cut out the blank cards on page 31 and divide them between the two of you. Make sure you both have a pencil each.

Turn over the first playing card. Both players write an equivalent fraction, decimal or percentage to match it on one of the blank cards and cover the playing card as quickly as possible.

For example, the playing card may say 50% – you could write $\frac{1}{2}$ or $\frac{5}{10}$ or $\frac{50}{100}$.

The first person to cover the card with a correct match wins and takes the pair. The player at the end of the game with the most cards is the winner.

Playing Cards

$\frac{75}{100}$	25%	$\frac{3}{4}$	$\frac{1}{4}$
0.5	0.25	$\frac{1}{2}$	50%
0.1	$\frac{1}{10}$	10%	0.75

Blank cards

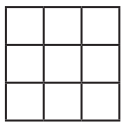
Calculating – adding and subtracting fractions with the same denominator

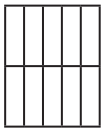
I ate $\frac{2}{4}$ of a cake for breakfast. Then I ate another $\frac{1}{4}$ for lunch. How many quarters did I eat altogether?

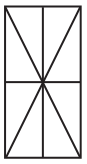
$$\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$$

1 **Shade the shapes to help you answer the problems:**

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

b  $\frac{3}{9} + \frac{3}{9} = \frac{\square}{\square}$

c  $\frac{4}{10} + \frac{3}{10} = \frac{\square}{\square}$

d  $\frac{3}{8} + \frac{2}{8} = \frac{\square}{\square}$

2 **Try these. Draw some diagrams if that will help you.**

a $\frac{1}{5} + \frac{2}{5} = \frac{\square}{\square}$

b $\frac{2}{7} + \frac{3}{7} = \frac{\square}{\square}$

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

d $\frac{1}{10} + \frac{5}{10} + \frac{1}{10} = \frac{\square}{\square}$

3 **Write addition fraction sentences for the following problems. Write your answers:**

a $\frac{1}{3}$ of the kids in Bailey's class played netball at playtime. $\frac{1}{3}$ of the kids played football. $\frac{1}{3}$ of the kids sat round and chatted. What fraction of the class played sport?

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

b Josh spent $\frac{1}{5}$ of his pocket money at the tuck shop and $\frac{2}{5}$ buying credits for his game. Write a fraction sentence to show the fraction he spent.

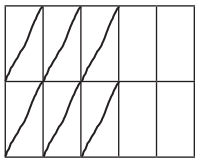
$\frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$

4 **Look at the problem $\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$. Why does the 4 stay as 4 – why isn't it $\frac{2}{4} + \frac{1}{4} = \frac{3}{8}$?**

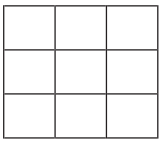
Calculating – adding and subtracting fractions with the same denominator

I had $\frac{3}{4}$ of a cake in the fridge. I ate $\frac{1}{4}$. I had $\frac{2}{4}$ left. $\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$

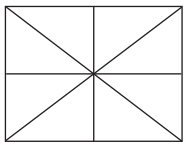
5 **Find answers to these subtraction problems. The first one has been done for you.**

a 

$\frac{10}{10} - \frac{6}{10} = \frac{4}{10}$

b 

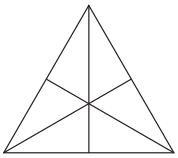
$\frac{9}{9} - \frac{8}{9} = \frac{\quad}{\quad}$

c 

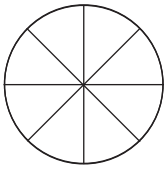
$\frac{8}{8} - \frac{4}{8} = \frac{\quad}{\quad}$

d 

$\frac{6}{6} - \frac{2}{6} = \frac{\quad}{\quad}$

e 

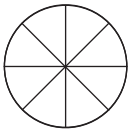
$\frac{6}{6} - \frac{2}{6} = \frac{\quad}{\quad}$

f 

$\frac{8}{8} - \frac{6}{8} = \frac{\quad}{\quad}$

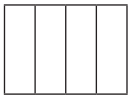
6 **Use the diagrams to help you solve these problems:**

a Marita cut her birthday cake into 8 equal slices and ate 2 of them straight away. What fraction was left?



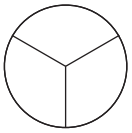
$\frac{\quad}{\quad}$

b Sam played a football game. He played goalie for 1 quarter of the game and in attack for the rest. What fraction of the game did he spend in attack?



$\frac{\quad}{\quad}$

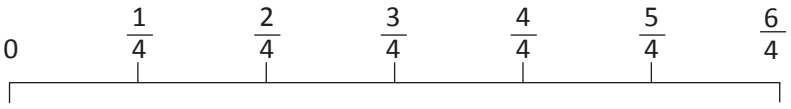
c Jacinta spent $\frac{1}{3}$ of her pocket money on chocolate and $\frac{1}{3}$ of it on a magazine. What fraction did she have left?



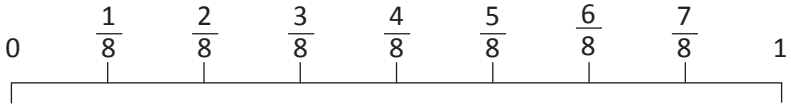
$\frac{\quad}{\quad}$

7 **Use the number lines to help you work out the answers to these problems:**

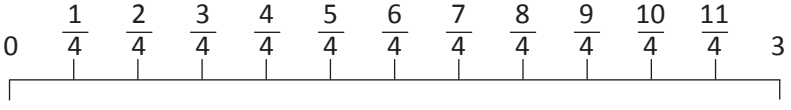
a $\frac{1}{4} + \frac{2}{4} = \frac{\quad}{4}$



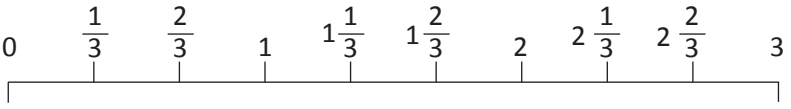
b $\frac{7}{8} - \frac{3}{8} = \frac{\quad}{\quad}$



c $\frac{6}{4} - \frac{3}{4} = \frac{\quad}{\quad}$

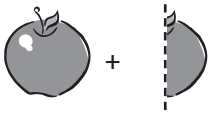


d $2\frac{2}{3} - \frac{1}{3} = \square \frac{\quad}{\quad}$



Calculating – adding and subtracting fractions to and from a whole

Adding fractions to whole numbers is a simple process.

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

1 **Add these fractions and whole numbers:**

a $2 + \frac{1}{2} = \square\frac{\square}{\square}$ **b** $4 + \frac{1}{3} = \square\frac{\square}{\square}$ **c** $3 + \frac{3}{4} = \square\frac{\square}{\square}$

d $\frac{1}{2} + 5 = \square\frac{\square}{\square}$ **e** $\frac{2}{3} + 4 = \square\frac{\square}{\square}$ **f** $\frac{4}{7} + 9 = \square\frac{\square}{\square}$

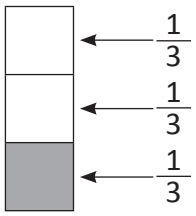
g $\frac{1}{2} + \square = 6\frac{1}{2}$ **h** $\square + \frac{2}{3} = 2\frac{2}{3}$ **i** $\frac{1}{5} + \square\frac{\square}{\square} = 2\frac{3}{5}$

How do we subtract fractions from a whole? We rename the wholes to make it simpler.

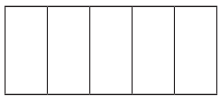
Look at the problem $1 - \frac{1}{3}$.

How many $\frac{1}{3}$ are in 1 whole? There are $\frac{3}{3}$ in a whole.

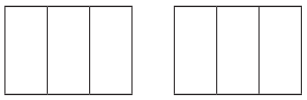
Now the problem is easier: $\frac{3}{3} - \frac{1}{3} = \frac{2}{3}$



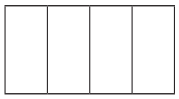
2 **Rename the wholes as fractions and use the diagrams to help you solve these problems:**

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

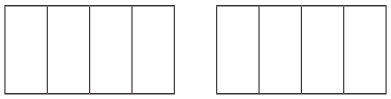
$=$

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

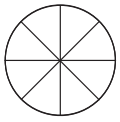
$=$

c $1 - \frac{1}{4} =$ 

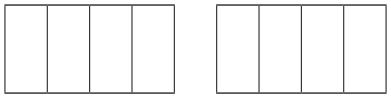
$=$

d $2 - \frac{3}{4} =$ 

$=$

e $1 - \frac{3}{8} =$ 

$=$

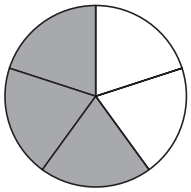
f $2 - \frac{1}{4} =$ 

$=$

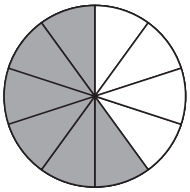
Calculating – adding and subtracting fractions with denominators that are multiples of the same number

If we need to add and subtract fractions whose denominators are multiples of the same number, we have first to make the denominators the same.

So, if we want to find $\frac{3}{5} + \frac{3}{10}$ we need to look at the denominators. Both 5 and 10 are multiples of 5, so we need to convert the fraction with the smaller denominator into tenths. To do this we multiply both numerator and denominator by 2.



$\frac{3}{5}$ is equivalent to $\frac{6}{10}$.



Now we can work out $\frac{6}{10} + \frac{3}{10}$ by adding the numerators. The answer is $\frac{9}{10}$.

1 **Solve these problems:**

a $\frac{2}{3} + \frac{1}{6} = \frac{\square}{6} + \frac{\square}{6} = \frac{\square}{\square}$

b $\frac{2}{9} + \frac{1}{3} = \frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$

c $\frac{4}{5} - \frac{1}{10} = \frac{\square}{\square} - \frac{\square}{\square} = \frac{\square}{\square}$

d $\frac{2}{3} - \frac{7}{12} = \frac{\square}{\square} - \frac{\square}{\square} = \frac{\square}{\square}$

2 **Solve these problems. Change any improper fractions into mixed numbers.**

a $\frac{3}{7} + \frac{9}{14} = \frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square} = \square\ \frac{\square}{\square}$

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

c $\frac{7}{18} + \frac{2}{3} = \frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square} = \square\ \frac{\square}{\square}$

Calculating – adding and subtracting fractions

1 **What could the missing numbers be? Create two different options for each:**

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

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

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

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

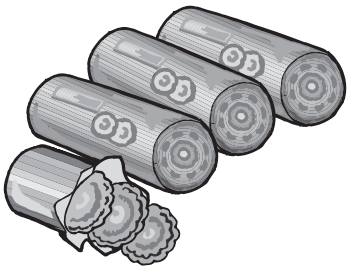
c $\square\ \frac{\square}{\square} + \frac{\square}{\square} = \square\ \frac{\square}{\square}$

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

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

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

2 **Solve these problems. Draw diagrams if they help:**



a You have $3\frac{1}{4}$ packets of biscuits. One friend eats $\frac{1}{4}$ packet, another eats $\frac{2}{4}$ and another eats $\frac{1}{4}$. What fraction do you have left?

b What fractions do you know that have a difference of $\frac{1}{4}$?

Calculating – adding decimal fractions

How do we add decimal fractions using a written strategy?

We arrange the numbers so the place values line up and then we start with the smallest value.

We first add the tenths. 6 tenths and 7 tenths is 13 tenths.

We rename this as 1 one and 3 tenths.

We write the 3 in the tenths column and move the ones number to the ones column.

Then we add the ones. 1 + 1 + 4 = 6

```
  1 . 6
+ 4 . 7
-------
  6 . 3
-------
  1
```

1 **Knowing how to rename is a useful skill when adding decimal fractions. Practise your renaming skills here by colour coding the matching boxes:**

10 tenths

18 tenths

68 hundredths

1 tenth and 4 hundredths

4 ones, 1 tenth and 4 hundredths

23 tenths

414 hundredths

7 ones and 6 tenths

1 one

6 tenths and 8 hundredths

2 ones and 3 tenths

76 tenths

14 hundredths

1 one and 8 tenths

2 **Add these decimal fractions:**

a
```
  2 . 6
+ 3 . 3
-------
```

b
```
  4 . 7
+ 5 . 4
-------
```

c
```
  5 . 4
+ 3 . 5
-------
```

d
```
  1 . 5
+ 1 2 . 3
---------
```

e
```
  1 8 . 6
+ 1 1 . 2
---------
```

f
```
  9 . 4
+ 3 . 7
-------
```

3 **Now try these. Start with the hundredths and remember to rename if neccessary:**

a
```
  3 . 4 6
+ 5 . 2 3
---------
```

b
```
  4 . 7 2
+ 3 . 1 9
---------
```

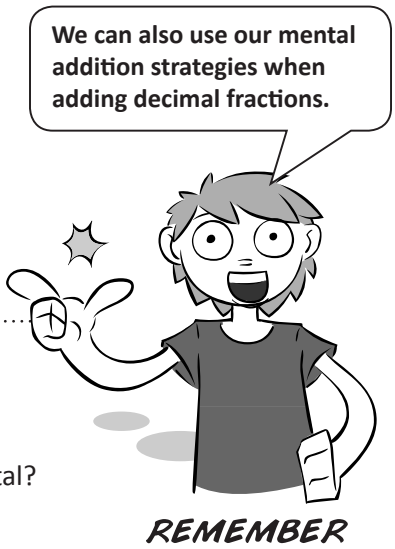
c
```
  7 . 3 6
+ 5 . 6 5
---------
```

Calculating – adding decimal fractions

4 **Use a mental or written strategy of your choice to solve these problems:**

a Add 6.06 and 5.42

b Add 4.294 and 8.587



c Jack scored 7.25 for his first dive and 8.35 for his second. What was his total score?

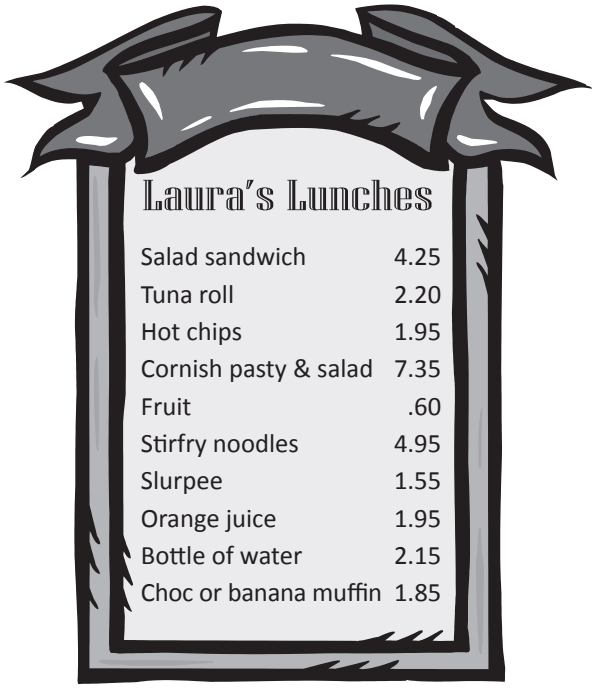
d Kate bought a movie ticket costing £9.50 and a drink/ popcorn combo costing £4.95. How much did she spend in total?

5 **This is a sample of the menu at Laura's Lunches.**

a Brad orders a cornish pasty & salad, a bucket of hot chips and an orange juice. How much will this cost him?

b Angelina goes wild and orders a tuna roll, a bottle of water and a piece of fruit. What will this cost her?

c Choose your own lunch. Itemise your list and calculate the total value of your order.



Calculating – subtracting decimal fractions

How do we subtract decimal fractions using a written strategy?
We arrange the numbers so the place values line up and then we start with the smallest value.
We first subtract the tenths. We have 2 tenths, can we subtract 5 tenths from this? No, so we rename a one as 10 tenths. Now we have 12 tenths. 12 tenths subtract 5 tenths is 7 tenths.
We have 5 ones, can we subtract 4 ones? Yes, the answer is 1 one.

$$\begin{array}{r} \boxed{5}\cancel{6}\,.\,\boxed{1}2 \\ -\ 4\,.\,5 \\ \hline 1\,.\,7 \end{array}$$

1 **Solve these subtraction problems:**

a $\square 8\,.\,\square 3 - 2\,.\,2$

b $\square 4\,.\,\square 7 - 3\,.\,4$

c $\square 5\,.\,\square 4 - 3\,.\,5$

d $\square 1\,\square 2\,.\,\square 3 - 5\,.\,2$

e $\square 1\,\square 8\,.\,\square 6 - 1\,1\,.\,2$

f $\square 9\,.\,\square 4 - 3\,.\,7$

2 **Now try these. Start with the hundredths and remember to rename if neccessary:**

a $\square 8\,.\,\square 4\,\square 4 - 3\,.\,2\,4$

b $\square 4\,.\,\square 7\,\square 2 - 2\,.\,2\,9$

c $\square 6\,.\,\square 5\,\square 4\,\square 8 - 4\,.\,6\,9\,7$

Sometimes we have to work with numbers that have a different amount of digits such as **8.4 – 5.35**
When this happens, we rename. 4 tenths becomes 40 hundredths: **8.40 – 5.35**

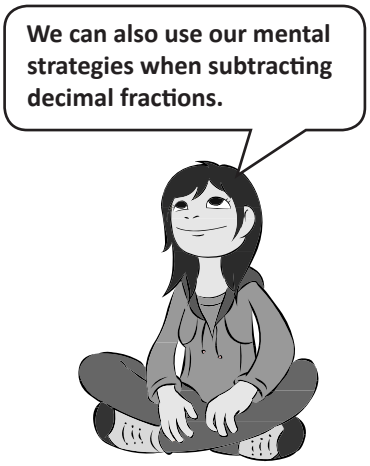
3 **Rename these problems and solve:**

a $\square 9\,.\,\square 5\,\square - 2\,.\,2\,4$

b $\square 6\,.\,\square 1\,\square 7 - 2\,.\,3$

c $\square 9\,.\,\square 3\,\square - 4\,.\,7\,2$

Calculating – subtracting decimal fractions



4 **Use a mental or written strategy of your choice to solve these problems:**

a 27.47 – 16.277

b 13.75 – 9.25

c In 1936 Jesse Owens broke the long jump record with a leap of 2.06 m. His record stood for 25 years until fellow American, Ralph Boston leapt 2.21 m. What did he beat Jesse's record by?

d The 100 m sprint record is held by Jamaican Usain Bolt, with a time of 9.69 sec. Asafa Powell neared that record a month later, with a time of 9.7 sec. What is the difference between their times? How much do you think Powell wishes he had managed to go just a tad faster?

5 **Belle's netball team measured their heights and entered them on the chart. What is the difference in heights between:**

Belle's Beauties

Suzy	1.43 m
Ti	1.37 m
Grace	1.47 m
Marietta	1.42 m
Madison	1.54 m
Lucy	1.58 m
Belle	1.61 m
Natasha	1.53 m
Donna	1.34 m
Nina	1.53 m

a Suzy and Lucy?

b Ti and Natasha?

c Nina and Belle?

d The tallest and shortest girl?

You cut, I choose

solve

Getting ready

You and your friend have been asked to attend a tea party. Your host, Mr Hatter, has made a chocolate clock cake for the festivities, but clearly he got a little mixed up with his numbers. It must have been all those pre-party nerves, or quite possibly the punch.

What to do

Anyway, he has asked you to cut the cake into 3 pieces so that each of you gets a piece with the numbers adding to the same total. How do you do it? Show your cuts on the clock cake below.

Each piece totals _____

Work out what fraction of the cake each of you receive. I should warn you, Mr Hatter wants the biggest piece.

I receive $\frac{\square}{\square}$ my friend receives $\frac{\square}{\square}$ and Mr Hatter receives $\frac{\square}{\square}$