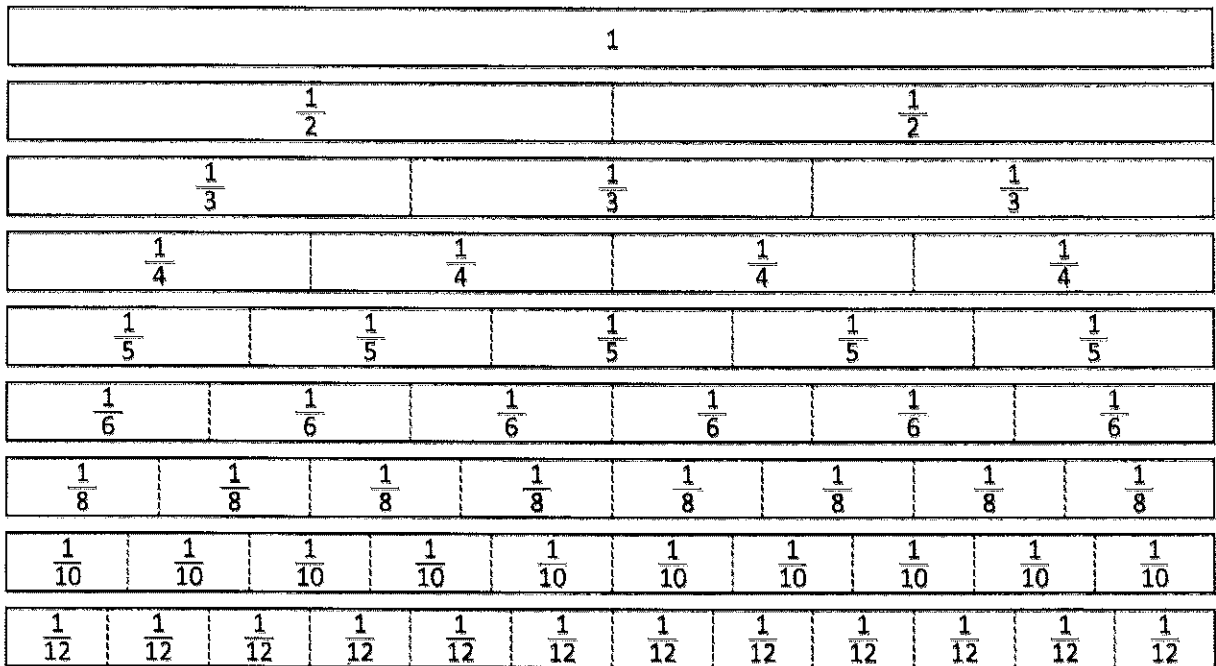


Fractions – comparing and ordering fractions

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 $\frac{3}{12}$

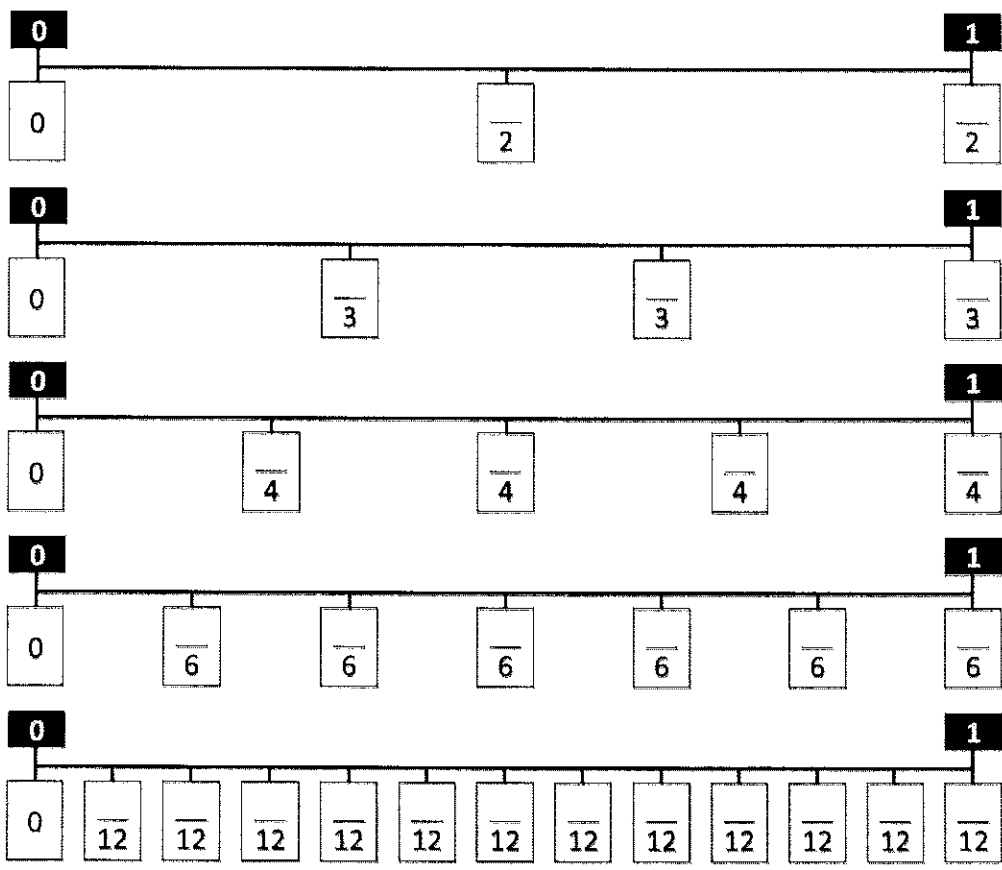
2 Use the fraction strips to:

- a Find 3 fractions that are the same as $\frac{1}{2}$ b Find 2 fractions that are the same as $\frac{1}{3}$ c Find the fraction that is greater than $\frac{2}{3}$ but less than $\frac{3}{4}$

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 $\frac{3}{12} > \frac{1}{6}$

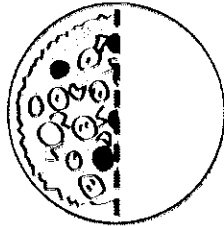
6 Use the number lines above to help you put these fractions in order from smallest to largest:

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

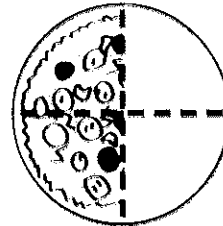
Fractions – equivalent fractions

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

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

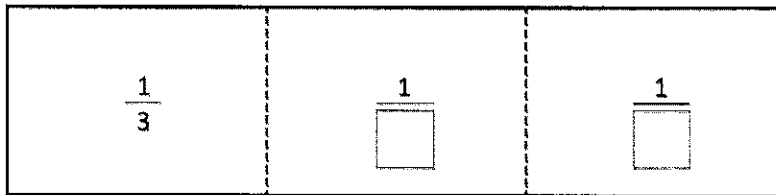


This pizza has been cut into 4 parts.
 $\frac{2}{4}$ has been eaten.



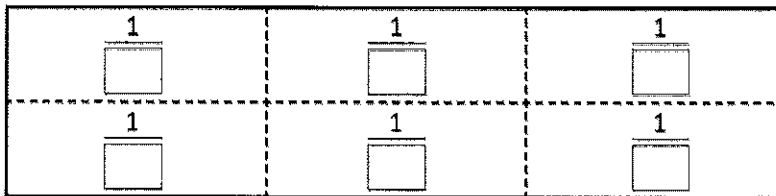
1 Do this folding paper activity to help you understand how equivalent fractions work:

- 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:

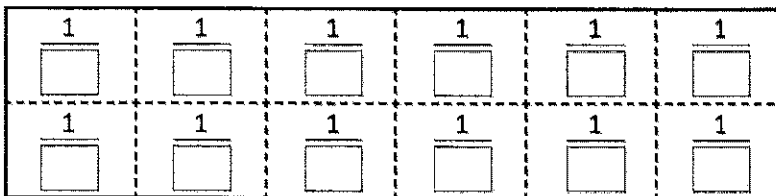


Remember the bottom number tells us how many parts there are in the whole.

- 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:

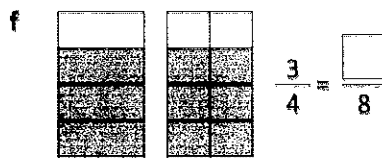
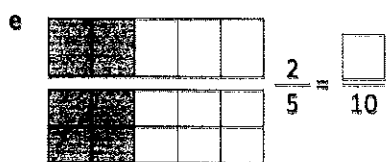
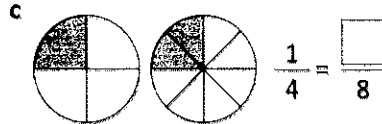
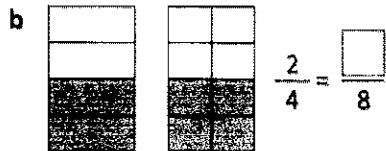
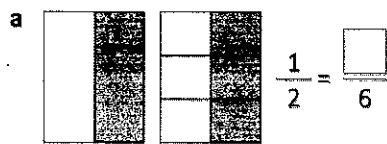
- a What fractions can you find that are equivalent to $\frac{1}{3}$?

<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
- b What fractions can you find that are equivalent to $\frac{8}{12}$?

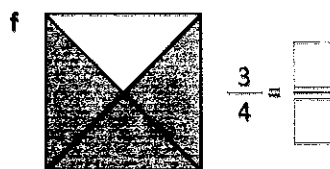
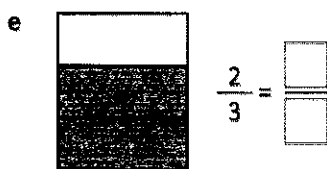
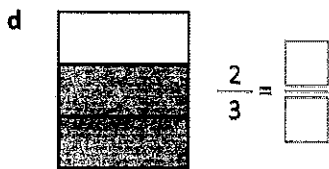
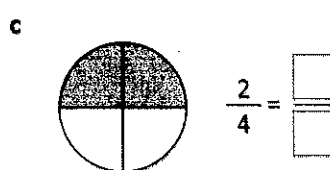
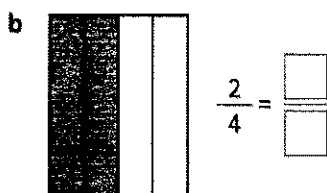
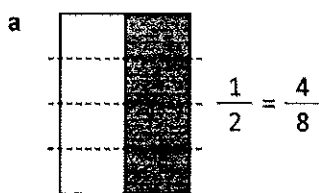
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
- c What other fractions can you think of that might be equivalent to $\frac{6}{12}$?

Fractions – equivalent fractions

3 Write the equivalent fraction for each of these:



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.

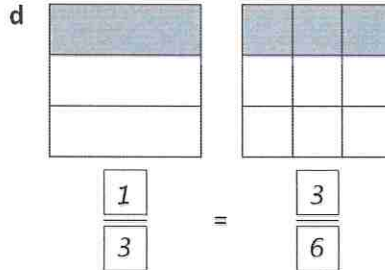
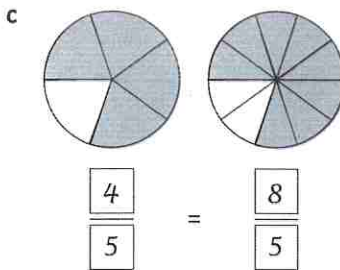
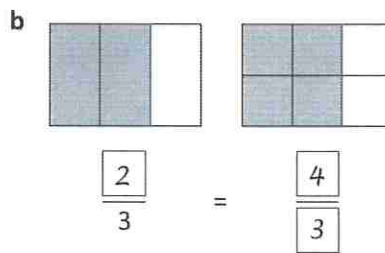
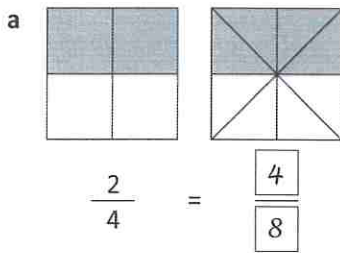


5 Is $\frac{2}{8}$ equivalent to $\frac{1}{4}$? Use diagrams to help explain your reasoning:

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

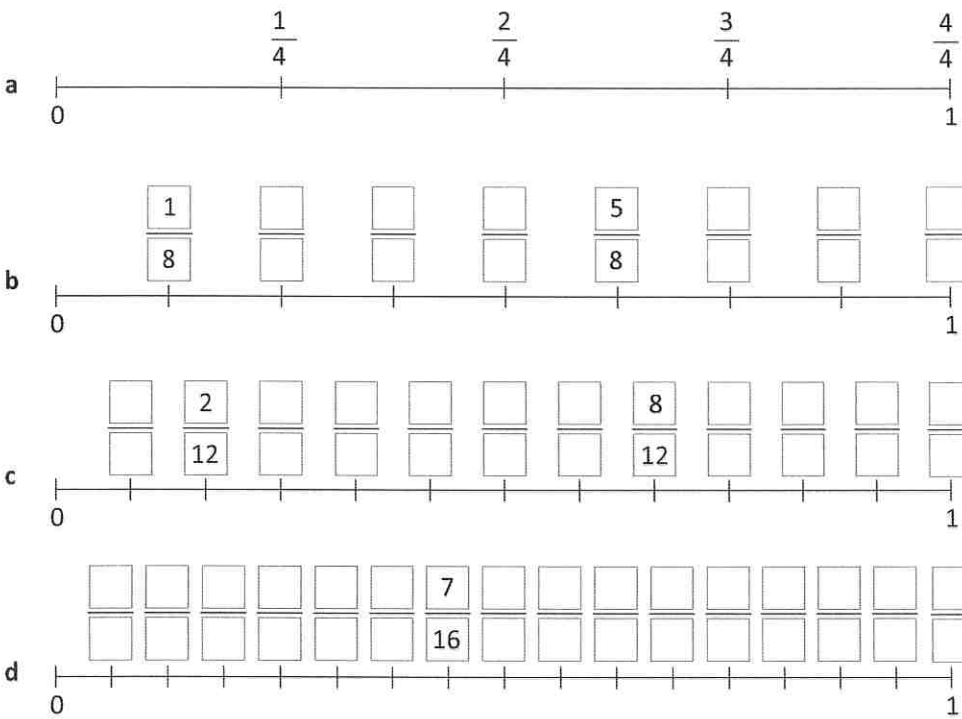
Fractions – equivalent fractions

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



Your feedback:

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



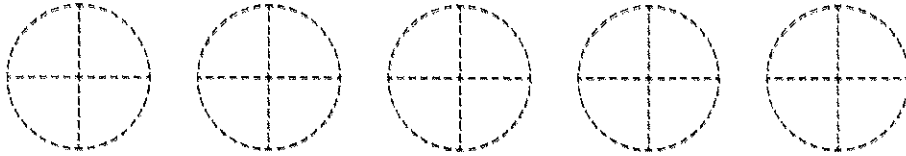
9 Use the number lines to answer the following:

- How many equivalent fractions can you find for $\frac{1}{4}$?
- Did you find a pattern? Can you continue it?

Fractions – mixed numbers activity

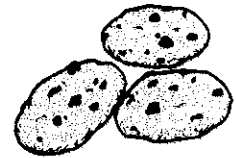
A group of friends has formed a Cookie Club. They bake cookies at home and share them in school every Friday. Help the group share the cookies fairly.

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.

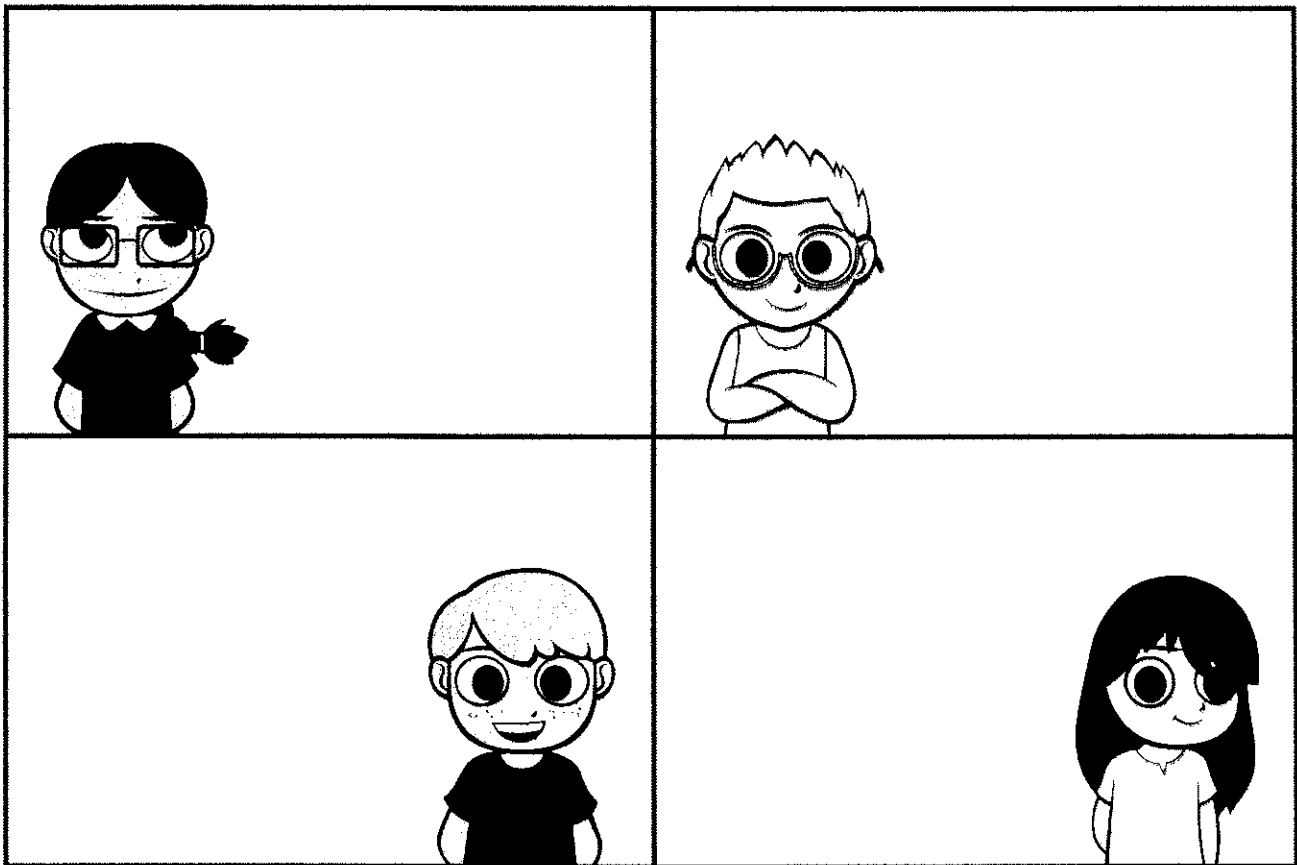


Problem 1: Saqib brought in 5 double choc chip cookies. Show him how he could share these among 4 Cookie Club members.

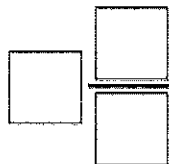
Hint: Cut each cookie into quarters.



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

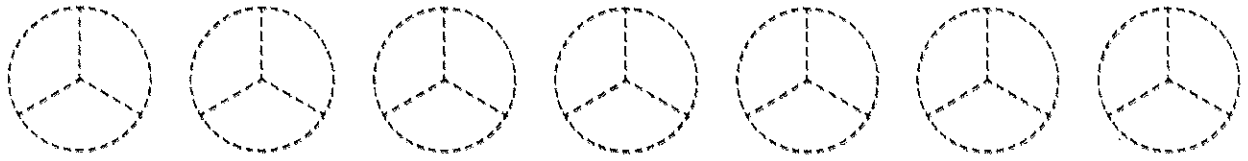


How many cookies does each member get?



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.

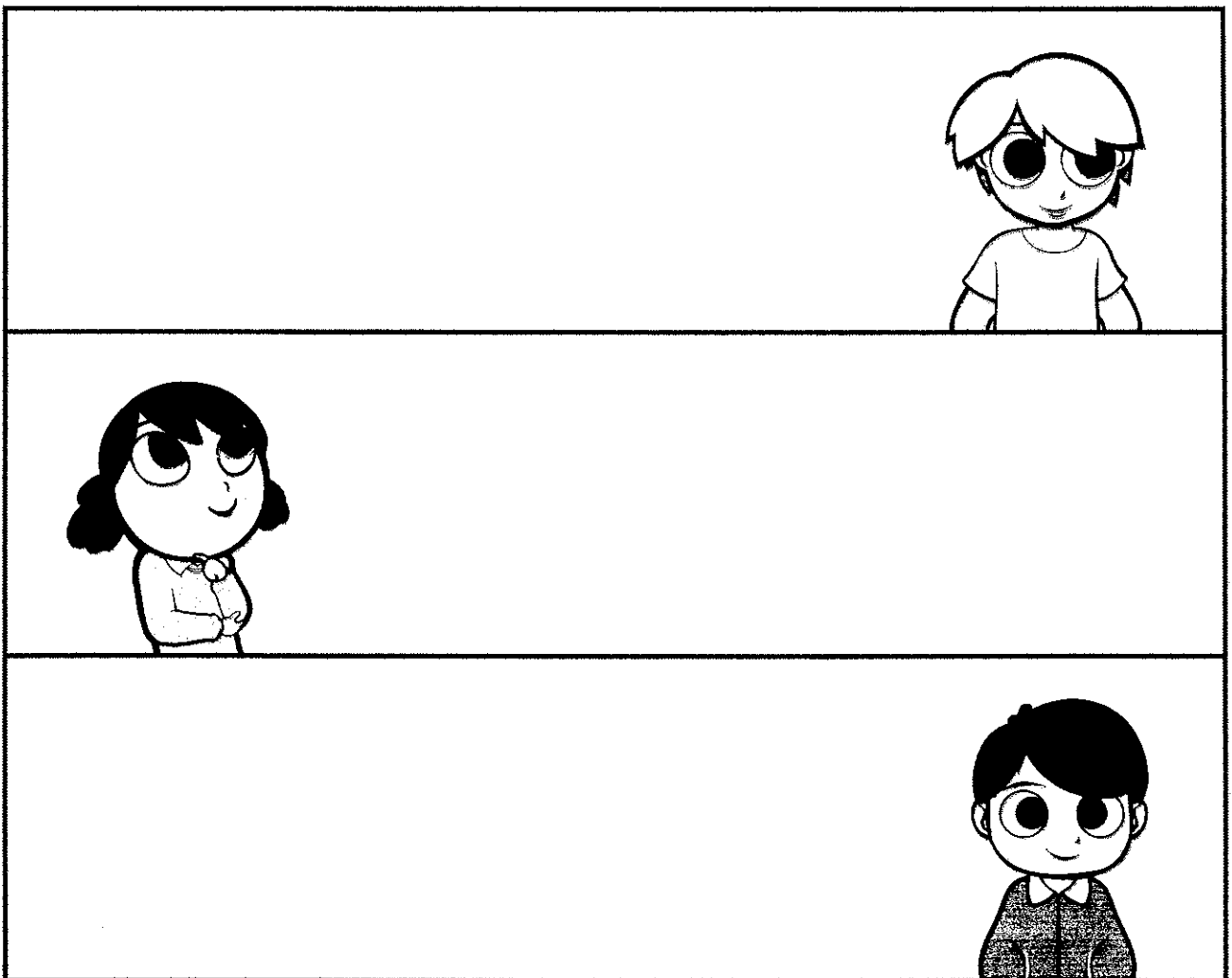


Hint: Cut each cookie into _____ pieces.

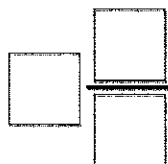
This means there are now a total of _____ pieces to share among 3 members.



Share these pieces evenly among 3 members:

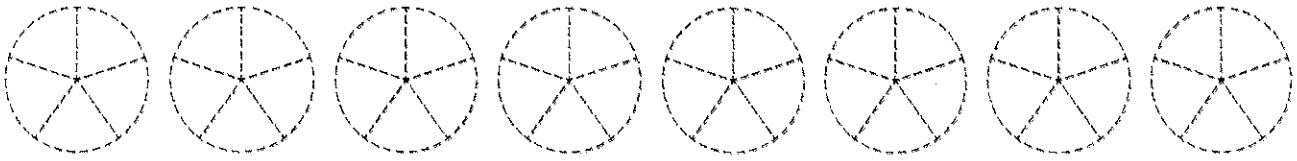


How many cookies does each member get?



Fractions – mixed numbers activity

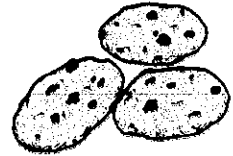
Problem 3: Rex brought in 8 double choc chip cookies. Show him how he could share these among 5 Cookie Club members.



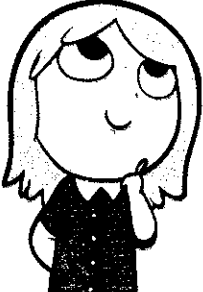
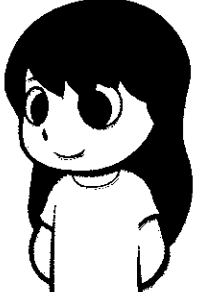

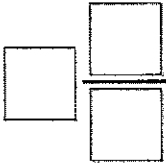


Hint: Cut each cookie into _____ pieces.

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

Share these pieces evenly among 5 members:



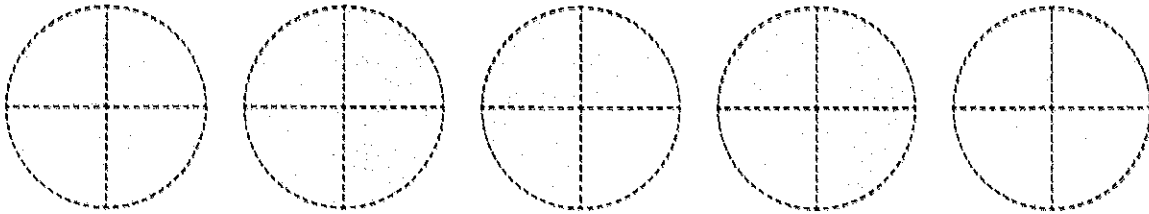
	
	
	<p>How many cookies does each member get?</p> 

Fractions – mixed numbers activity

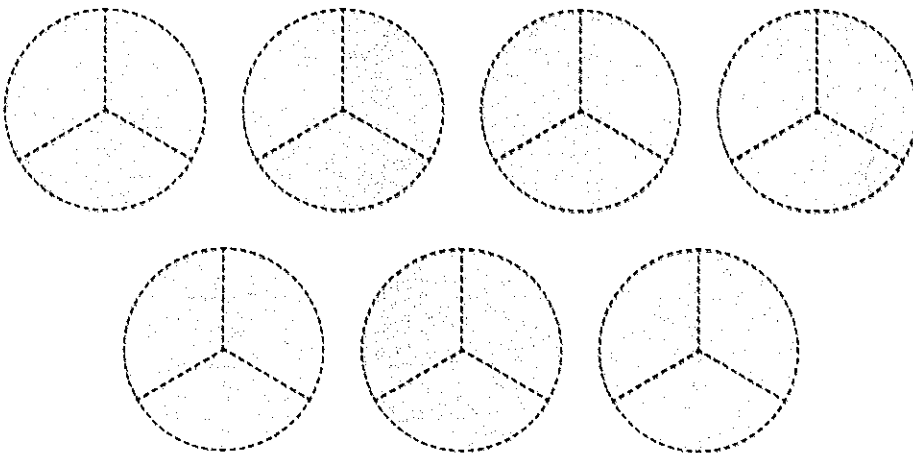
Copy and cut out the following shapes:



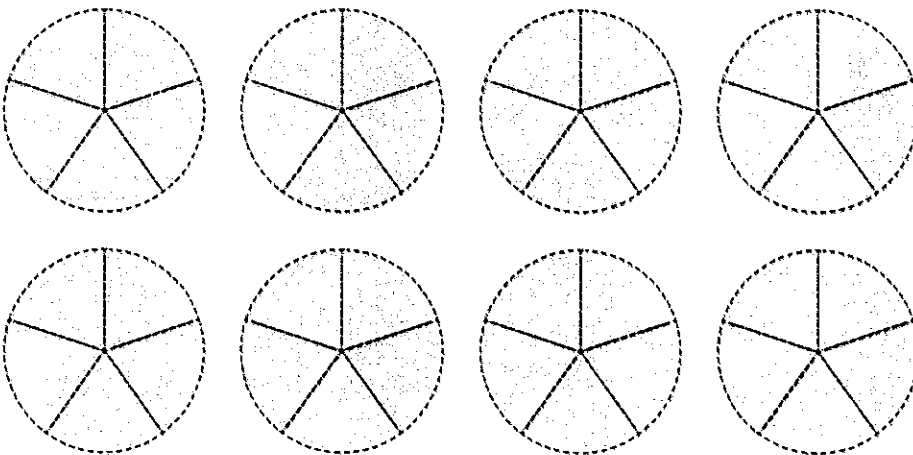
Problem 1



Problem 2



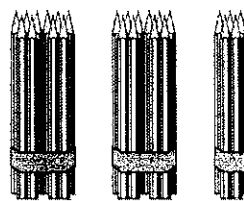
Problem 3



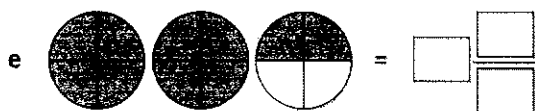
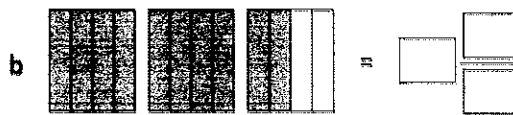
Fractions – mixed numbers and improper fractions

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:



2 Draw some diagrams or pictures that would represent:

a

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

b

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

c

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

d

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

3 What might the missing numbers be?

a $1\frac{1}{2} > 1\frac{\text{ }}{4}$

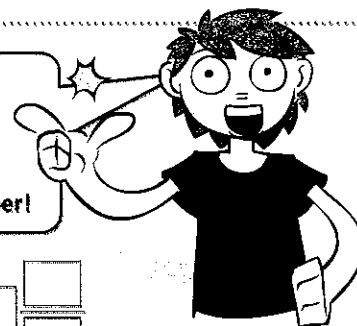
b $3\frac{1}{3} < \frac{\text{ }}{\text{ }}$

c $1\frac{1}{5} < 1\frac{\text{ }}{\text{ }}$

d $2\frac{3}{6} > 2\frac{\text{ }}{\text{ }}$

e $2\frac{1}{3} > 2\frac{\text{ }}{\text{ }}$

The little pointy part of the sign > points to the smaller number!

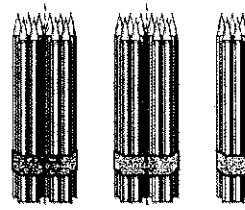


REMEMBER

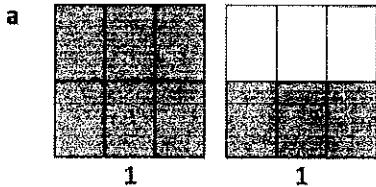
Fractions – mixed numbers and improper fractions

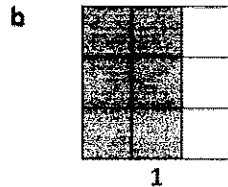
Mixed numbers can also be written as improper fractions.
Look again at Ky's full packets and one half packet of pencils.
This is five halves.

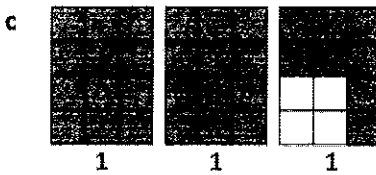
Written as an improper fraction, this is $\frac{5}{2}$.

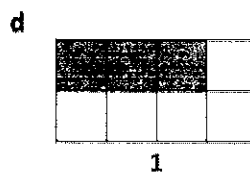


4 Express these as fractions. Circle any improper fractions:



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


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


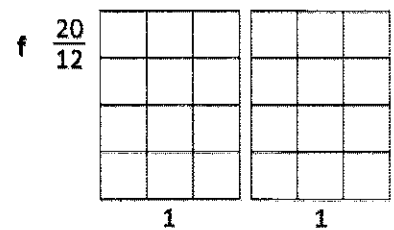
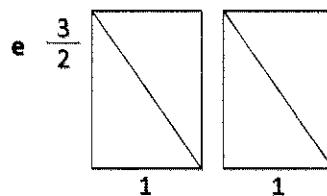
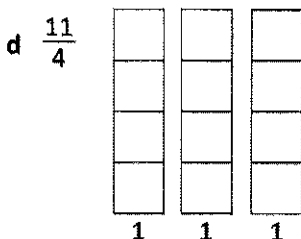
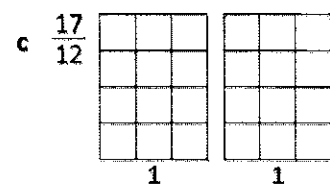
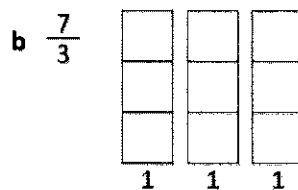
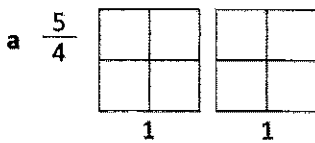
$$\frac{\quad}{\quad}$$


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

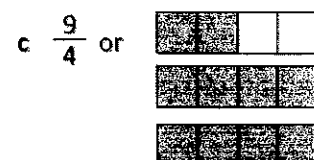
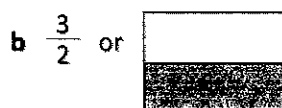
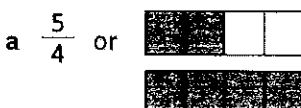
An improper fraction is any fraction where the parts add up to more than 1.



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

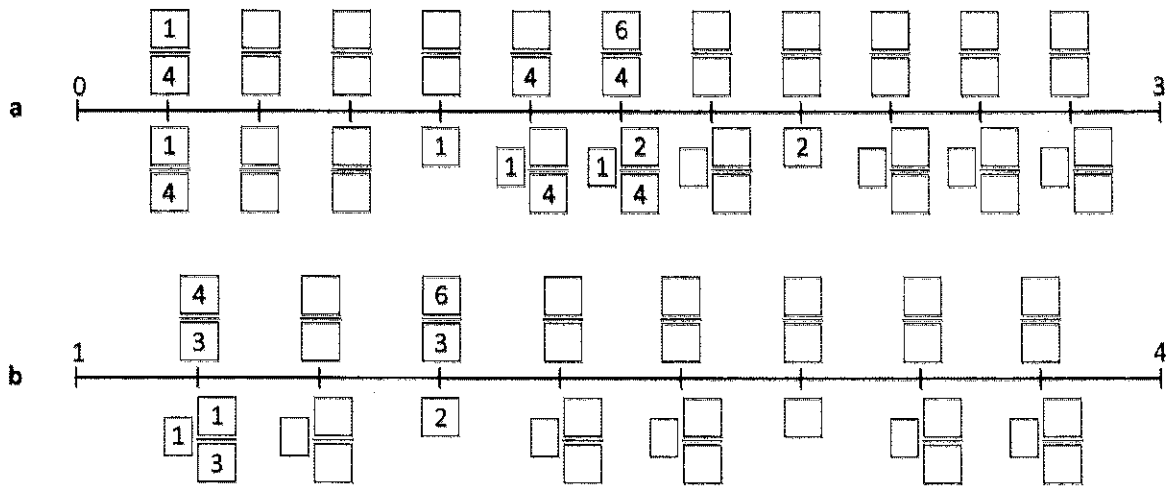


6 Which is bigger? Circle the larger fraction:



Fractions – mixed numbers and improper fractions

7 Complete the number lines by filling in the boxes:



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

- a What is $2\frac{1}{4}$ expressed as an improper fraction?
- b Write $\frac{13}{11}$ as a mixed number.
- c Find an improper fraction that is greater than $1\frac{1}{3}$ but less than $\frac{10}{3}$.
- 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 $1\frac{1}{3} = \frac{\text{ } \text{ }}{\text{3}}$

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

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

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

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

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

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

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

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

Fractions – multiplying proper fractions and mixed numbers

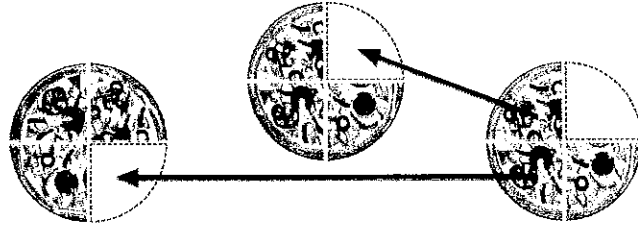
A proper fraction is a number less than 1.
Its numerator (the top number) is less than its denominator (the bottom number).

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

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

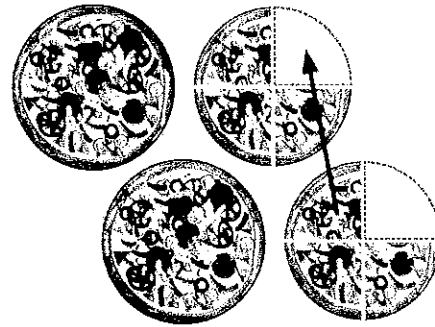
If we multiply a proper fraction by a whole number, we simply multiply the numerator to create an improper fraction, and then divide the total by the denominator.

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



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

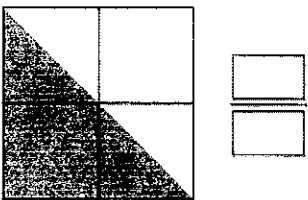
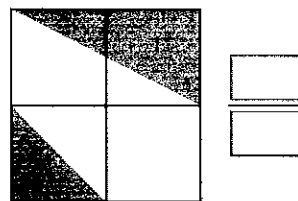
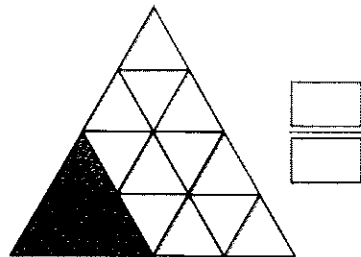
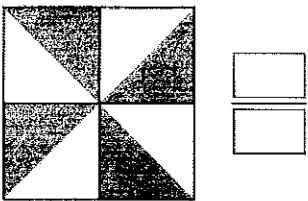
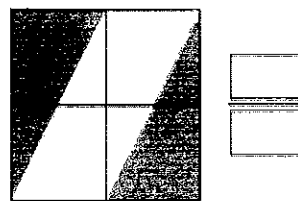
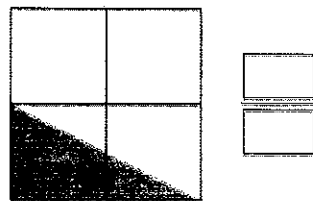
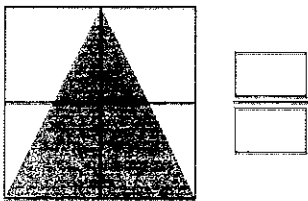
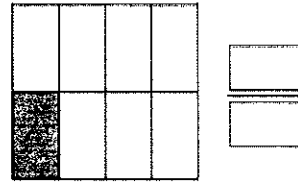
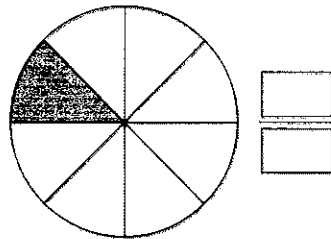
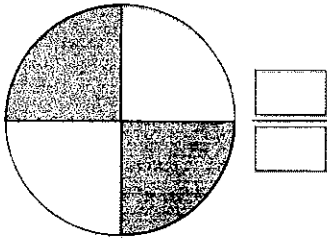
Find the fraction

solve

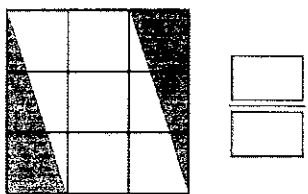
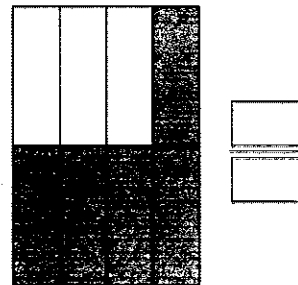


What to do

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.



Hmm ... what will help me work these out? I could flip the shaded parts around in my head or maybe I could cut the shapes out and re-order them.



THINK

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

--

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

--

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

--

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

a 0.8

--	--	--	--	--	--	--	--	--	--

b $\frac{5}{10}$

--	--	--	--	--	--	--	--	--	--

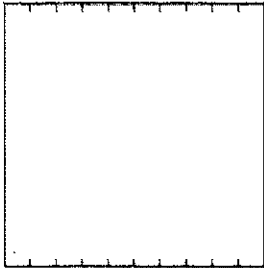
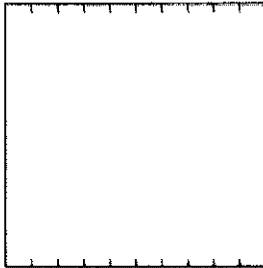
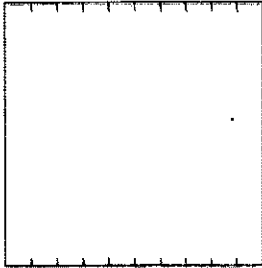
c 0.4

--	--	--	--	--	--	--	--	--	--

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  b  c 

$\frac{4}{10}$

--	--	--	--	--	--	--	--	--	--

$\frac{8}{10}$

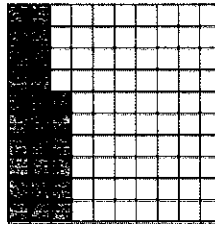
--	--	--	--	--	--	--	--	--	--

$\frac{5}{10}$

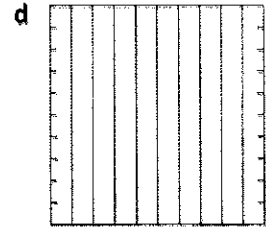
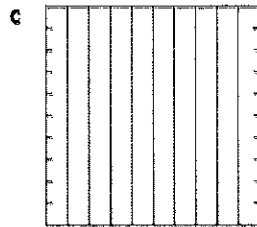
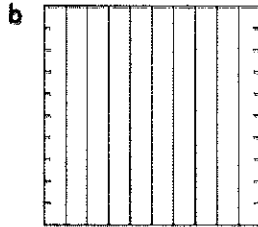
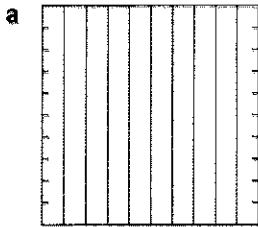
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Fractions, decimals and percentages – tenths and hundredths

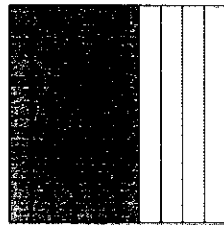
A hundredth is a tenth of a tenth.
 Here, 26 hundredths have been shaded.
 We write this as **0.26**
 There are no ones, 2 tenths and 6 hundredths.



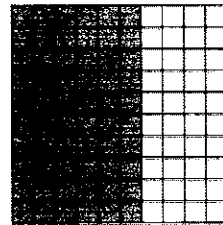
1 Use a ruler and a pencil to divide these into hundredths and then shade the specified amounts:



Six tenths are shaded here.

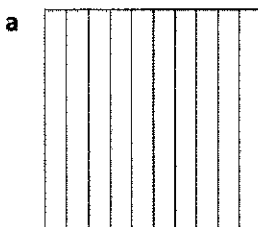


Sixty hundredths are shaded here.

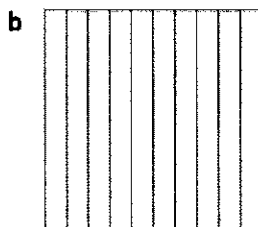
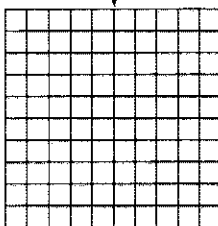


What do you notice? Sixty hundredths and six tenths have the same value $0.60 = 0.6$

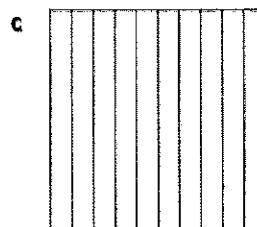
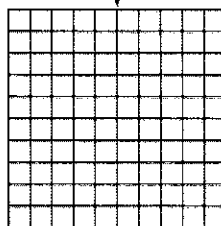
2 Check that the above statement is true by shading the amounts. Are they the same?



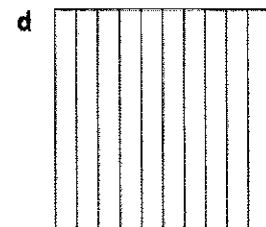
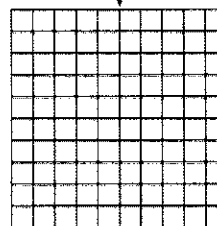
4 tenths
40 hundredths



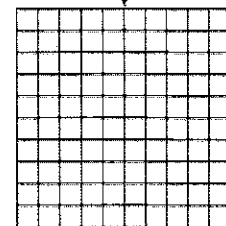
6 tenths
60 hundredths



8 tenths
80 hundredths

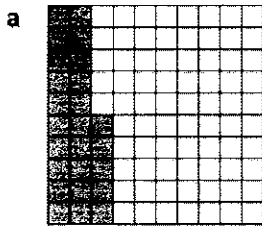


2 tenths
20 hundredths

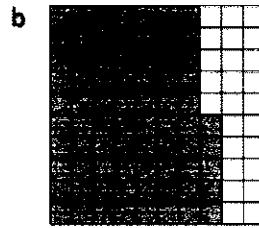


Fractions, decimals and percentages – tenths and hundredths

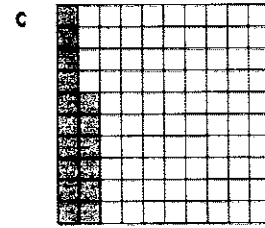
3 Complete these statements. The first one has been done for you.



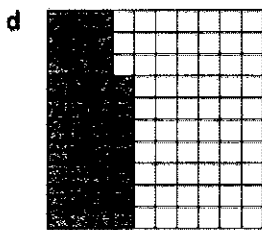
This is $\frac{25}{100}$
It can be renamed as:
 $\frac{2}{10}$ and $\frac{5}{100}$



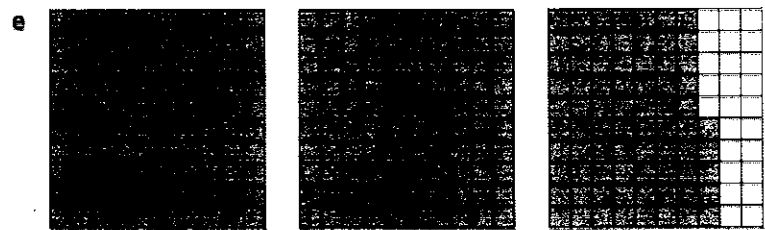
This is $\frac{75}{100}$
It can be renamed as:



This is $\frac{16}{100}$
It can be renamed as:

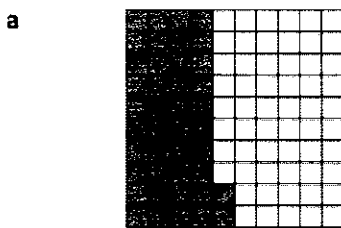


This is $\frac{37}{100}$
It can be renamed as:

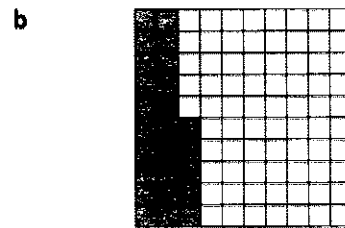


This represents 2 wholes and $\frac{75}{100}$
It can be renamed as:

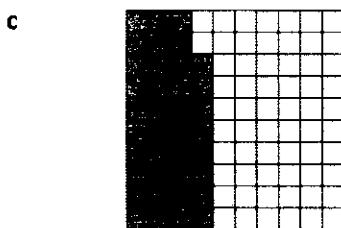
4 Complete the missing information:



$$\frac{42}{100} = \frac{4}{10} + \frac{2}{100} = \boxed{} \cdot \boxed{} \boxed{}$$



$$\frac{}{100} = \frac{}{10} + \frac{}{100} = \boxed{} \cdot \boxed{} \boxed{}$$



$$\frac{}{100} = \frac{}{10} + \frac{}{100} = \boxed{} \cdot \boxed{} \boxed{}$$



$$\frac{}{100} = \frac{}{10} + \frac{}{100} = \boxed{} \cdot \boxed{} \boxed{}$$

Fractions, decimals and percentages – place value to thousandths

A thousandth is a tenth of a hundredth.

Ones	Tenths	Hundredths	Thousandths
2	•	2	5

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.

- 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.

T or F	Score
Total	