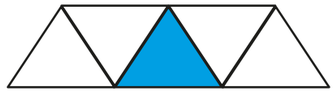
What is a fraction?

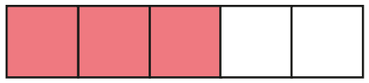
1 What fraction of each shape is shaded?

a)



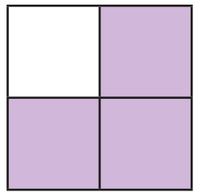
$\frac{1}{5}$

b)



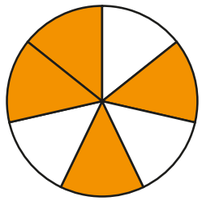
$\frac{3}{5}$

c)



$\frac{3}{4}$

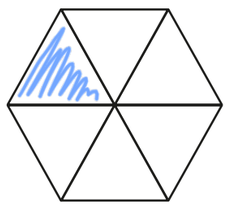
d)



$\frac{4}{7}$

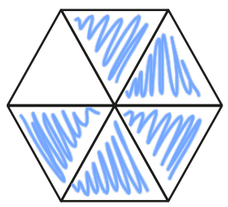
2 Shade each diagram to represent the fractions.

a)



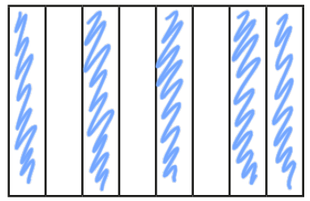
$\frac{1}{6}$

b)



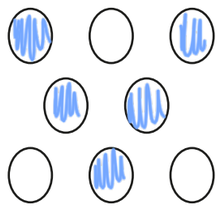
$\frac{5}{6}$

c)



$\frac{5}{8}$

d)



$\frac{5}{8}$

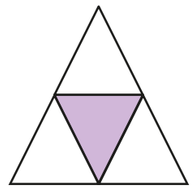
3 Circle the unit fractions.

$\frac{1}{3}$ $\frac{1}{5}$ $\frac{3}{5}$ $\frac{1}{8}$ $\frac{2}{3}$ $\frac{10}{11}$

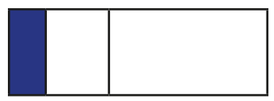
How do you know which are unit fractions?

4 **a)** Tick the shapes with one third shaded.

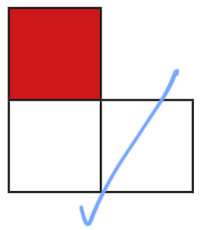
A



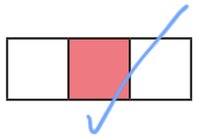
B



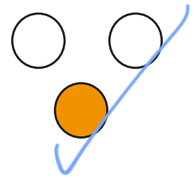
C



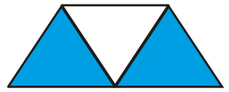
D



E



F



G

b) Complete the sentences to describe the shapes with one third shaded.

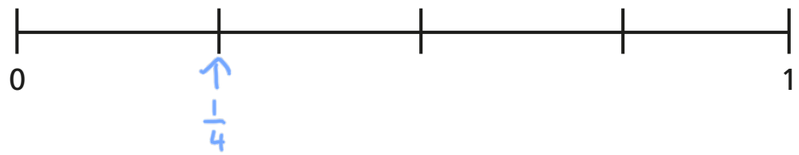
There are [3] equal parts altogether.

[1] out of [3] equal parts is shaded.

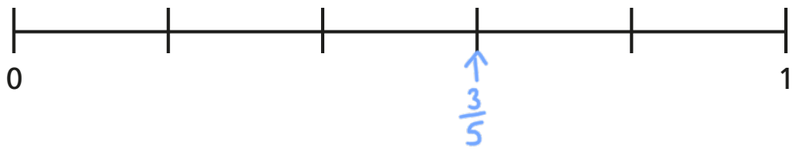
[$\frac{1}{3}$] of the shape is shaded.

5 Draw an arrow to show the position of the fraction on the number line.

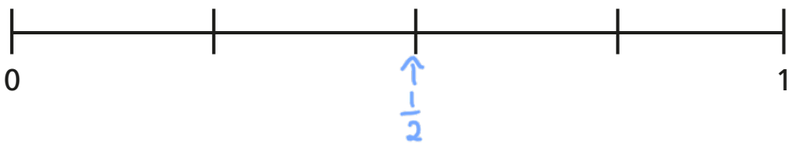
a) $\frac{1}{4}$



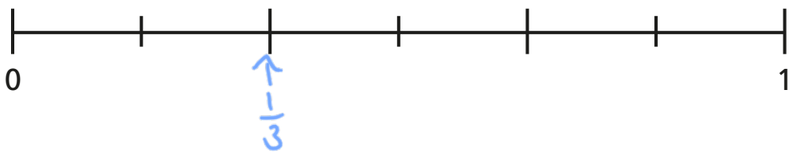
b) $\frac{3}{5}$



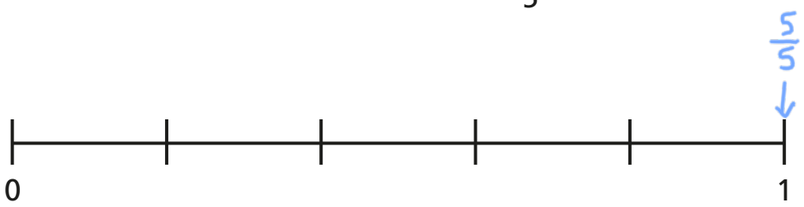
c) $\frac{1}{2}$



d) $\frac{1}{3}$



6 Draw an arrow to show the position of $\frac{5}{5}$ on the number line.

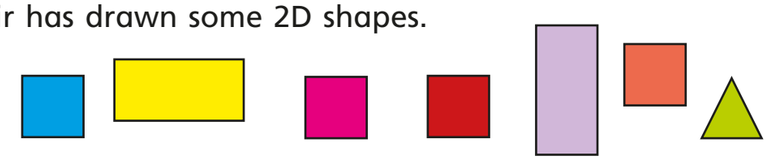


What do you notice?

7 Draw four different representations of $\frac{3}{4}$

Various answers e.g.

8 Amir has drawn some 2D shapes.



a) What fraction of the shapes are triangles?

$\frac{1}{7}$

b) What fraction of the shapes are squares?

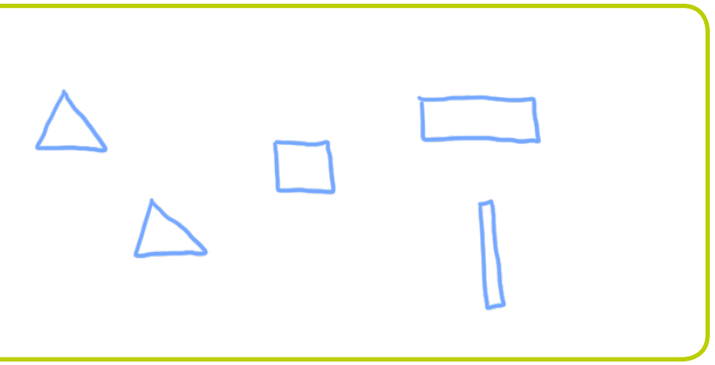
$\frac{3}{7}$

c) What fraction of the shapes have four sides?

$\frac{6}{7}$

d) Draw 2D shapes to match the description.

$\frac{1}{5}$ are squares, $\frac{2}{5}$ are triangles, $\frac{3}{5}$ have more than 3 sides.



Compare shapes with a partner.

What is the same about your shapes? Is anything different?

Equivalent fractions (1)

1 Shade the bar models to represent the equivalent fractions.

a)

$\frac{1}{2}$	$\frac{1}{2}$

$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

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

b)

$\frac{1}{2}$	$\frac{1}{2}$

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

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

c)

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

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

$\frac{4}{5} = \frac{8}{10}$

d)

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

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

$\frac{6}{8} = \frac{3}{4}$

2 Use the fraction wall to complete the equivalent fractions.

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

a) $\frac{1}{2} = \frac{\boxed{2}}{4}$

b) $\frac{1}{2} = \frac{\boxed{4}}{8}$

c) $\frac{2}{4} = \frac{4}{\boxed{8}}$

d) $\frac{2}{8} = \frac{\boxed{1}}{4}$

e) $\frac{\boxed{6}}{8} = \frac{3}{4}$

f) $\frac{2}{2} = \frac{\boxed{4}}{4} = \frac{\boxed{8}}{8}$

3 **a)** Label the fractions on the fraction wall.

1								
$\frac{1}{3}$			$\frac{1}{3}$			$\frac{1}{3}$		
$\frac{1}{6}$		$\frac{1}{6}$	$\frac{1}{6}$		$\frac{1}{6}$	$\frac{1}{6}$		$\frac{1}{6}$
$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$

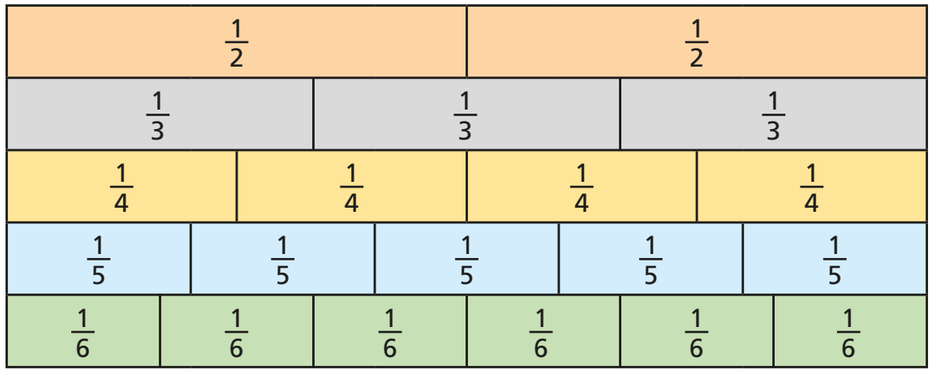
b) Use the fraction wall to complete the equivalent fractions.

$\frac{1}{3} = \frac{\boxed{2}}{6} = \frac{3}{\boxed{9}}$

$\frac{\boxed{2}}{3} = \frac{4}{\boxed{6}} = \frac{6}{9}$

$\frac{3}{\boxed{3}} = \frac{6}{\boxed{6}} = \frac{9}{\boxed{9}} = 1$

4 Here is a fraction wall.



Is each statement true or false? Tick your answers.

	True	False
a) $\frac{1}{2}$ is equivalent to $\frac{3}{6}$	☑	☐
b) $\frac{2}{3}$ is equivalent to $\frac{3}{4}$	☐	☑
c) $\frac{2}{4}$ is equivalent to $\frac{3}{6}$	☑	☐
d) $\frac{2}{3}$ is equivalent to $\frac{4}{5}$	☐	☑
e) $\frac{2}{3}$ is equivalent to $\frac{4}{6}$	☑	☐
f) $\frac{3}{5}$ is equivalent to $\frac{4}{6}$	☐	☑

Write your own equivalent fractions statements.

Ask a partner to say if they are true or false.

5 Are the statements always, sometimes or never true?

Circle your answer.

Draw a diagram to support your answer.

a) The greater the numerator, the greater the fraction.

always **sometimes** never

e.g. $\frac{4}{5} > \frac{1}{5}$ BUT $\frac{1}{2} > \frac{2}{5}$

b) Fractions equivalent to one half have even numerators.

always **sometimes** never

e.g. $\frac{1}{2}$ (odd numerator)

$\frac{2}{4}$ (even numerator)

c) If a fraction is equivalent to one half, the denominator will be double the numerator.

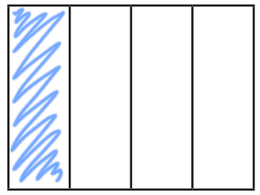
always sometimes never

No matter how many parts it's split into, the number shaded (numerator) will be half the total parts (denominator).

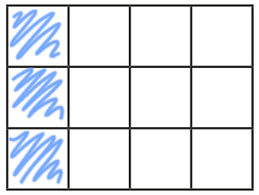
Equivalent fractions

1 Shade the shapes to show the equivalent fractions.

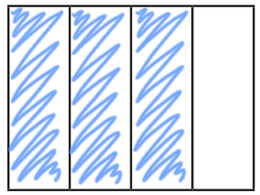
a)



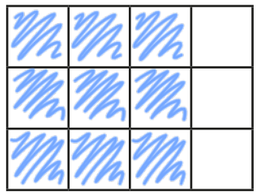
$\frac{1}{4} = \frac{3}{12}$



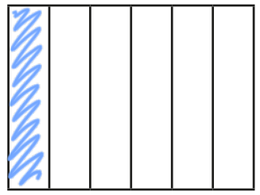
b)



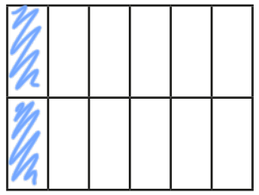
$\frac{3}{4} = \frac{9}{12}$



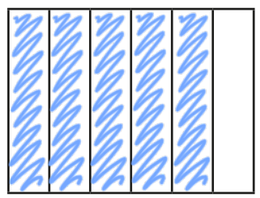
c)



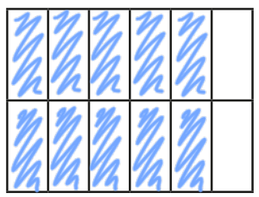
$\frac{1}{6} = \frac{2}{12}$



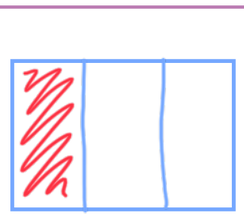
d)



$\frac{5}{6} = \frac{10}{12}$

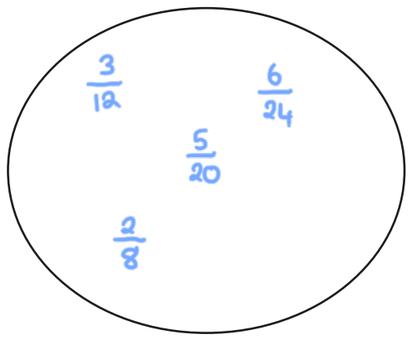


2 Draw two rectangles to show that $\frac{1}{3} = \frac{4}{12}$

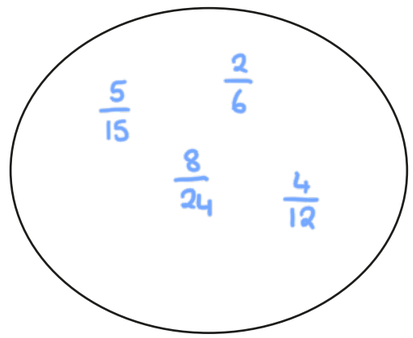


3 **a)** Sort the fractions into the groups.

Equivalent to $\frac{1}{4}$



Equivalent to $\frac{1}{3}$



$\frac{5}{15}$	$\frac{2}{6}$	$\frac{3}{12}$	$\frac{6}{24}$	$\frac{8}{24}$	$\frac{5}{20}$	$\frac{4}{12}$	$\frac{2}{8}$

b) Write one more fraction in each group.

4 Complete the equivalent fractions.

a) $\frac{1}{7} = \frac{2}{14}$

b) $\frac{5}{7} = \frac{10}{14}$

c) $\frac{7}{8} = \frac{14}{16}$

d) $\frac{3}{4} = \frac{6}{8}$

e) $\frac{3}{4} = \frac{12}{16}$

f) $\frac{3}{4} = \frac{9}{12}$

g) $\frac{2}{3} = \frac{10}{15}$

h) $\frac{2}{5} = \frac{10}{25}$

i) $\frac{2}{7} = \frac{10}{35}$

j) Describe the pattern in part g), h) and i) to a partner.

5 Find three ways to make the fractions equivalent.

e.g.

a) $\frac{1}{2} = \frac{7}{14}$

$\frac{1}{8} = \frac{7}{56}$

$\frac{1}{100} = \frac{7}{700}$

b) $\frac{7}{7} = \frac{14}{14}$

$\frac{7}{1} = \frac{14}{2}$

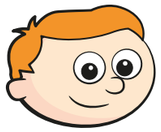
$\frac{7}{10} = \frac{14}{20}$

c) $\frac{1}{7} = \frac{2}{14}$

$\frac{5}{7} = \frac{10}{14}$

$\frac{21}{7} = \frac{42}{14}$

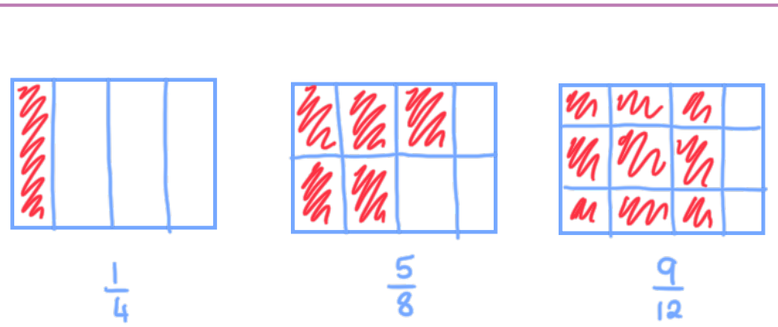
6 Ron is finding equivalent fractions to $\frac{1}{4}$



$\frac{1}{4}$ is equivalent to $\frac{5}{8}$ and $\frac{9}{12}$

Do you agree with Ron? No

Draw a diagram to support your answer.



Compare answers with a partner.

7 Here are some equivalent fractions.

Find the values of A, B and C.

$\frac{A}{9}$ $\frac{3}{B}$ $\frac{2}{18}$ $\frac{C}{90}$

A = 1 B = 27 C = 10

8 Here are three fraction cards.

All the fractions are equivalent.

$\frac{3}{A}$ $\frac{B}{14}$ $\frac{12}{C}$

A + B = 13

Work out the value of C.

C = 28

9 $\frac{1}{5} = \frac{3}{1 + \bullet}$

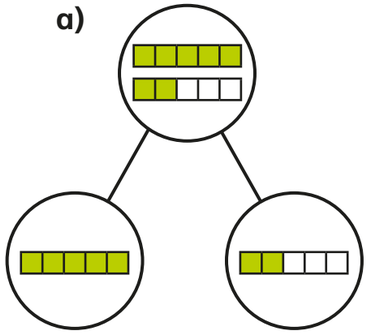
Find the value of $\bullet$

$\bullet$ = 14

Fractions greater than 1

1 Complete the sentences.

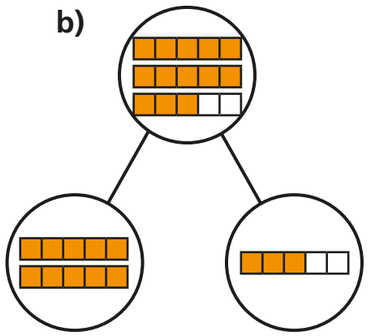
a)



There are 7 fifths altogether.

7 fifths = [1] whole + [2] fifths

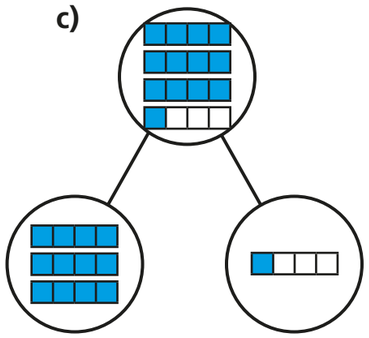
b)



There are [13] fifths altogether.

[13] fifths = [2] wholes + [3] fifths

c)



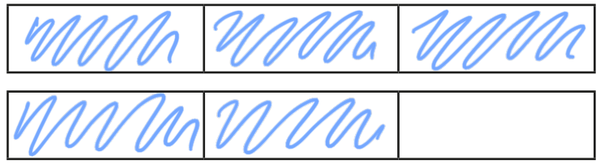
There are [13] quarters altogether.

[13] quarters = [3] wholes + [1] quarter

2 Shade the bar models to represent the fractions.

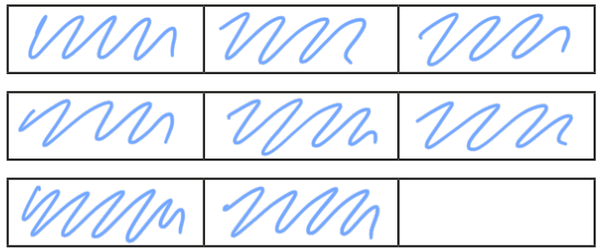
Complete the number sentences.

a) $\frac{5}{3}$



$\frac{5}{3}$ = [1] whole + [2] thirds = [$1\frac{2}{3}$]

b) $\frac{8}{3}$



$\frac{8}{3}$ = [2] wholes + [2] thirds = [$2\frac{2}{3}$]

c) $\frac{8}{5}$

$\frac{8}{5}$ = [1] whole + [3] fifths = [$1\frac{3}{5}$]

3 Complete the statements.

a) $\frac{12}{2}$ = [6] wholes

b) $\frac{12}{4}$ = [3] wholes

c) $\frac{12}{6}$ = [2] wholes

d) $\frac{12}{3}$ = [4] wholes

e) $\frac{15}{3}$ = [5] wholes

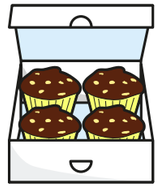
f) $\frac{15}{5}$ = [3] wholes

g) $\frac{15}{4}$ = [3] wholes + [3] quarters

h) $\frac{15}{2}$ = [7] wholes + [1] half

4 Whitney bakes 26 muffins.

Muffins are packed in boxes of 4



a) How many boxes can Whitney fill?

Whitney can fill [6] boxes.

b) How many more muffins does Whitney need to fill another box?

Whitney needs [2] muffins to fill another box.

Explain how you know.

She will fill 6 boxes with 2 left over so another 2 are needed to fill the seventh box.

How does writing $\frac{26}{4}$ help you to answer this?

5 Write <, > or = to complete the statements.

a) 2 wholes and 3 quarters (>) 5 quarters

b) 2 wholes and 3 quarters (<) 15 quarters

c) 2 wholes and 3 sixths (=) 15 sixths

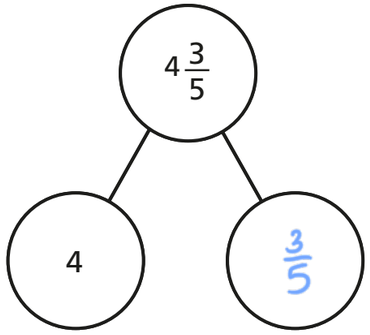
d) 2 wholes and 3 eighths (>) 15 eighths

e) $\frac{15}{3}$ (>) $\frac{15}{5}$

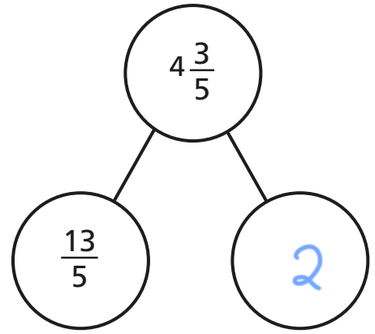
f) $\frac{15}{3}$ (=) $\frac{20}{4}$

6 Complete the part-whole models.

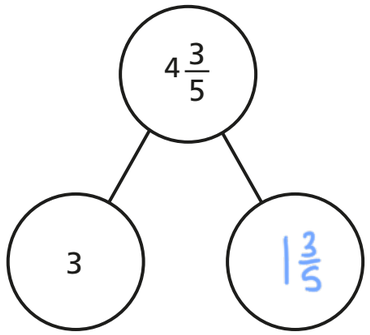
a)



c)



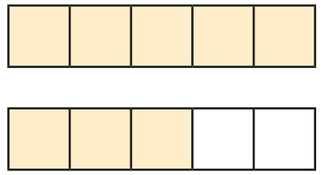
b)



Improper to mixed numbers

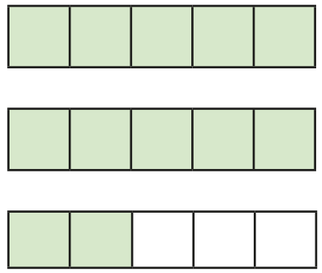
1 Convert the improper fractions to mixed numbers.

a)



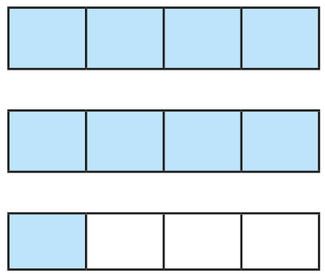
$\frac{8}{5} = \square$

b)



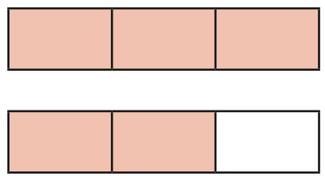
$\frac{\square}{5} = \square$

c)



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

d)

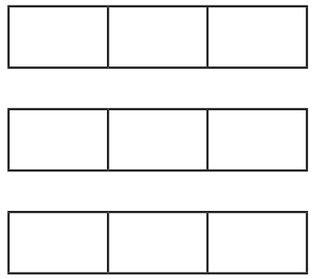


$\frac{\square}{\square} = \square$

2 Shade the bar models to represent each improper fraction.

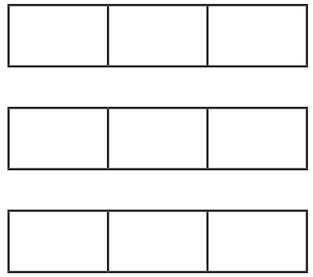
Convert the improper fractions to mixed numbers.

a)



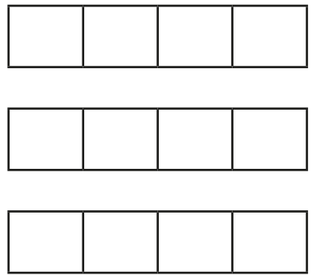
$\frac{7}{3} = \square$

b)



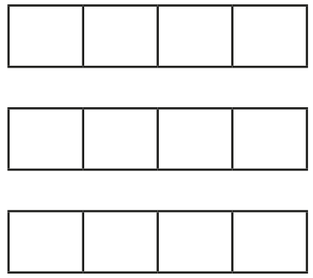
$\frac{8}{3} = \square$

c)



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

d)



$\frac{11}{4} = \square$

3 Convert the improper fractions to mixed numbers.

a) $\frac{10}{2}$ = 5

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

c) $\frac{10}{4}$ = $2\frac{1}{2}$

d) $\frac{10}{5}$ = 2

e) $\frac{12}{5}$ = $2\frac{2}{5}$

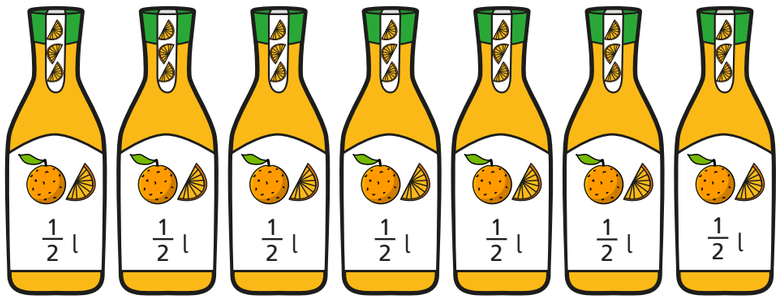
f) $\frac{13}{6}$ = $2\frac{1}{6}$

g) $\frac{13}{7}$ = $1\frac{6}{7}$

h) $\frac{31}{8}$ = $3\frac{7}{8}$

4 Eva has 7 bottles of juice.

Each bottle contains half a litre of juice.

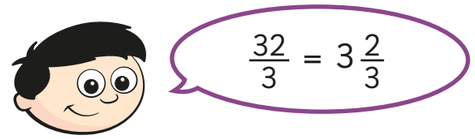


How many litres of juice does Eva have altogether?

Write your answer as a mixed number.

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

5 Dexter is converting improper fractions.



Explain why Dexter is incorrect.

6 Find the value of ●

$\frac{27}{●} = ● \frac{2}{●}$

● = 5

7 Find two possible values for ★ and ▲

$\frac{30}{★} = ▲ \frac{2}{★}$

★ = 14 ▲ = 2

★ = 7 ▲ = 4