



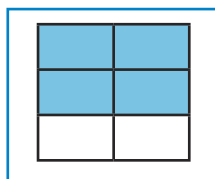
Fractions

Home Learning Booklet



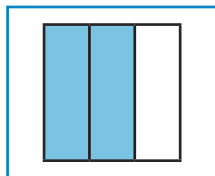
Understand the Whole

1) Match the cards that equal a whole.



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

three-quarters



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

two-sixths

2) Filling in the missing fraction to complete the statements.

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

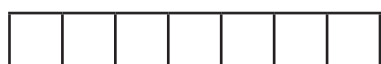
$$1 = \frac{2}{7} + \frac{\square}{\square}$$

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

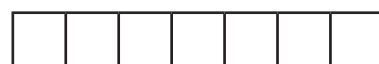
3) Shade the whole in different ways and write the matching statements underneath.



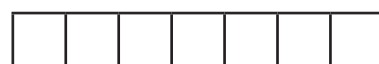
$$\frac{\square}{\square} + \frac{\square}{\square} = 1$$



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



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

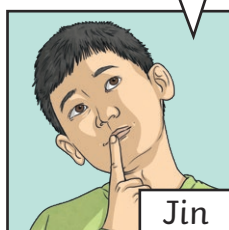


$$\frac{\square}{\square} + \frac{\square}{\square} = 1$$

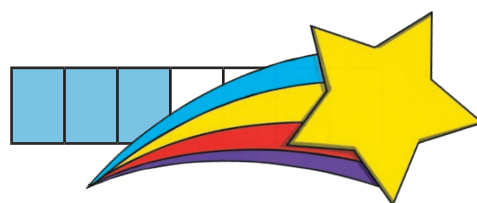
4) Jin says:

Do you agree with Jin?
Explain your reasoning.

Seven-thirds
are needed to
make a whole.



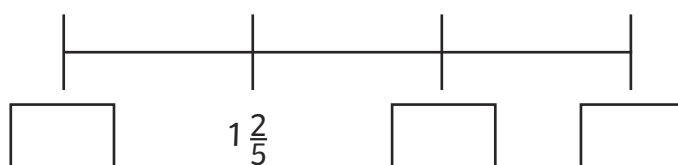
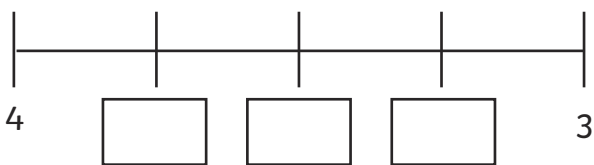
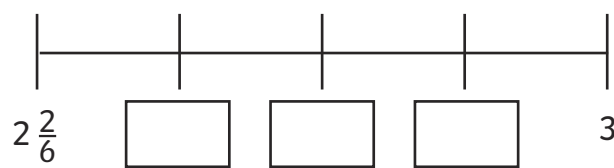
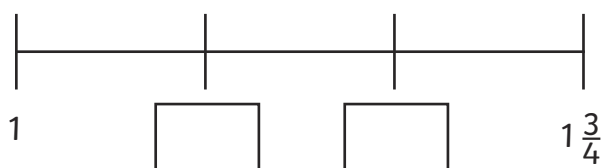
Extra Challenge



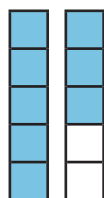
Part of this shape has been shaded. What fraction could this be? Could there be more than one answer? Explain your reasoning.

Count Beyond 1

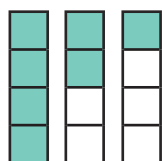
1) Label the missing values.



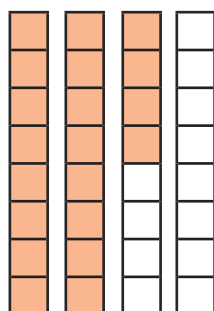
2) Match the fractions to the correct image.



1



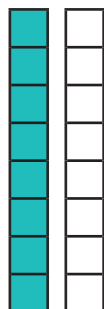
$1\frac{3}{5}$



$1\frac{2}{4}$

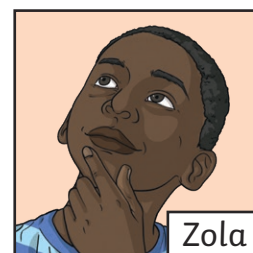


$1\frac{3}{4}$



$2\frac{4}{8}$

3) Zola has created a number line. Spot the mistake that they has made.

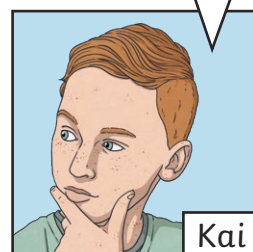


Extra Challenge

Hena and Kai share three mini pizzas. Between them, they eat thirteen-fifths.

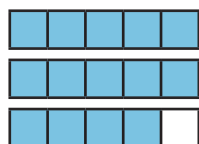
What fraction of the pizzas has Hena eaten?

I have eaten two pizzas.

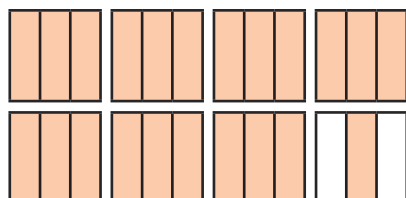


Partition a Mixed Number

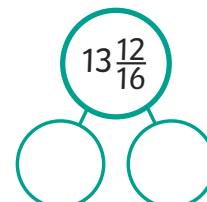
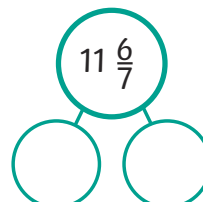
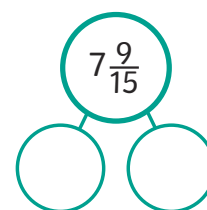
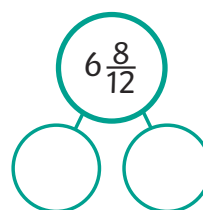
1) Identify the mixed numbers shown.



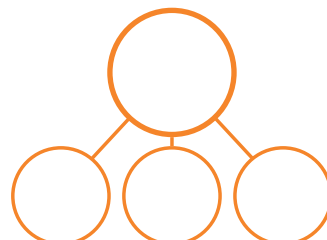
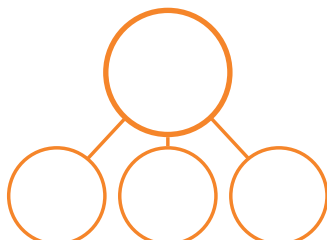
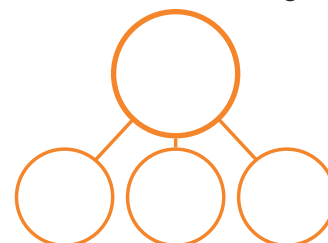
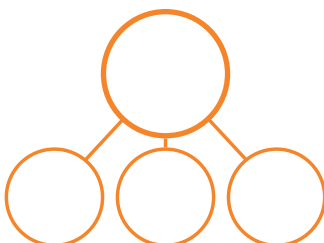
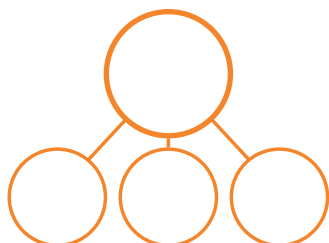




2) Partition the mixed numbers into whole numbers and proper fractions.



3) Complete the part-whole models to show 5 different ways of partitioning $4 \frac{5}{8}$.



4) Ruby says:

Mixed numbers can only be partitioned into either 2 or 3 parts.

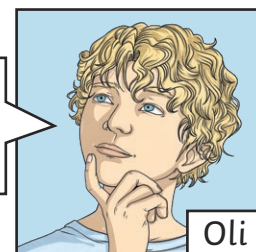


Ruby

Is Ruby correct? Give reasons for your answer.

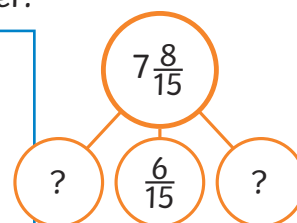
Extra Challenge

One of the missing numbers could be $2 \frac{3}{15}$.



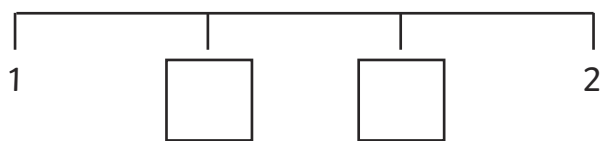
Oli

Is Oli correct? Give reasons for your answer.



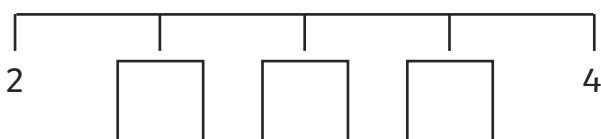
Number Lines with Mixed Numbers

- 1) Label the missing values and complete the sentences to match.



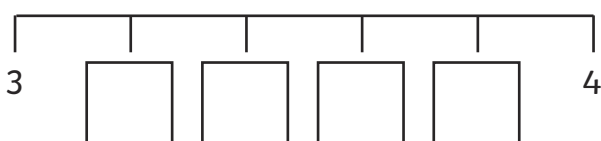
The expression is .

Each interval is worth .



The expression is .

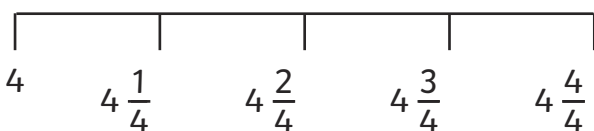
Each interval is worth .



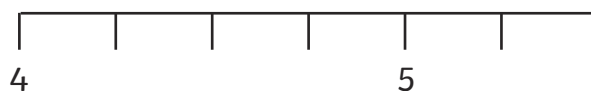
The expression is .

Each interval is worth .

- 3) Charlie has completed a number line. Spot the mistake that he has made.



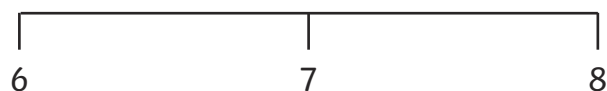
- 2) Position the fractions on the number lines.



$4\frac{2}{4}$

$5\frac{1}{4}$

$4\frac{3}{4}$



$6\frac{1}{3}$

$7\frac{2}{3}$

$7\frac{1}{3}$



$9\frac{5}{6}$

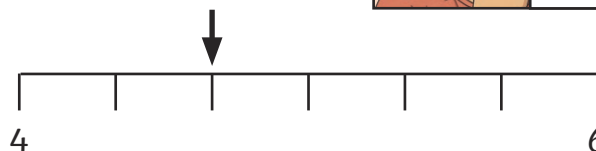
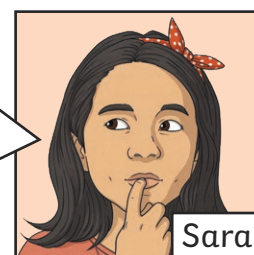
$9\frac{3}{6}$

$9\frac{1}{6}$

Extra Challenge

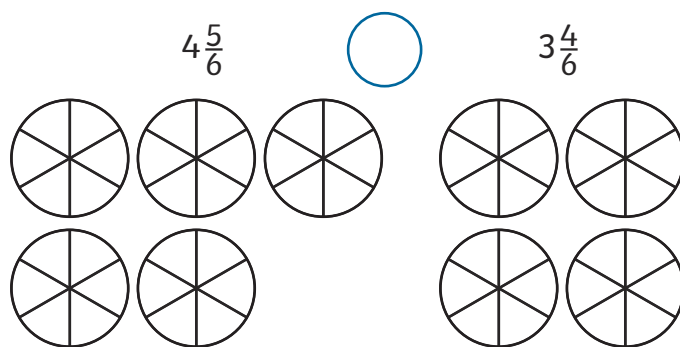
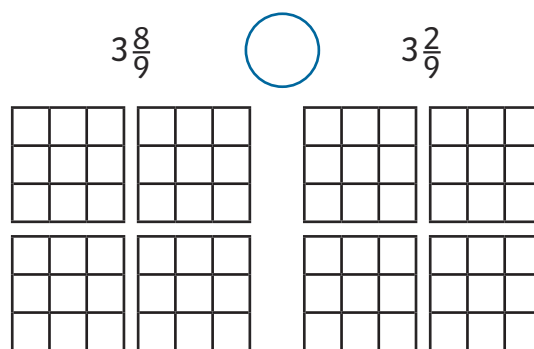
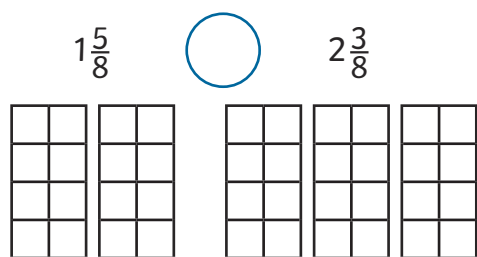
Do you agree with Sara?

The arrow is pointing to $4\frac{2}{6}$.



Compare and Order Mixed Numbers

- 1) Shade the models to represent the mixed numbers. Insert $<$ or $>$ to complete the statements.



- 2) Write $<$ or $>$ to compare the mixed numbers.

$2\frac{4}{6}$  $4\frac{1}{6}$ $6\frac{3}{12}$  $4\frac{3}{12}$

$5\frac{3}{5}$  $2\frac{2}{10}$ $7\frac{5}{9}$  $9\frac{1}{2}$

- 3) Order the mixed numbers.

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

smallest

greatest

$8\frac{1}{10}$ $9\frac{2}{10}$ $9\frac{6}{10}$ $8\frac{7}{10}$

greatest

smallest

Extra Challenge

The missing mixed number could be $3\frac{8}{9}$.

Anton



$3\frac{1}{8} < \boxed{} < 3\frac{7}{9}$

Is Anton correct? Give reasons for your answer.

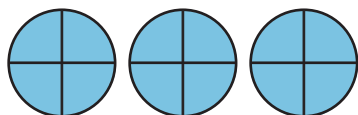
- 4) Hena has completed the statement below.

$5\frac{6}{16} < 4\frac{15}{16}$

Is she correct? Give reasons for your answer.

Understand Improper Fractions

1) Complete the sentences for each representation.

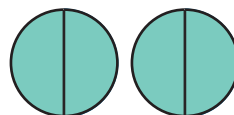


Each whole is divided into equal parts. Each part is worth 1 .

There are in 1 whole so there are altogether.

This improper fraction is:

.



Each whole is divided into equal parts. Each part is worth 1 .

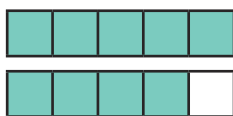
There are in 1 whole so there are altogether.

This improper fraction is:

.

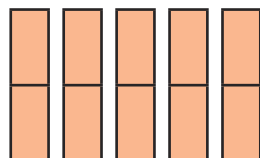
2) Circle the improper fraction for each representation.

a.



$\frac{12}{2}$	$\frac{15}{5}$	$\frac{9}{5}$
----------------	----------------	---------------

b.

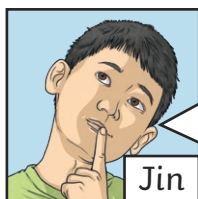


$\frac{2}{10}$	$\frac{10}{2}$	$\frac{14}{2}$
----------------	----------------	----------------

3) Circle the improper fractions which are less than 3 wholes.

	$\frac{10}{4}$	$\frac{18}{6}$
	$\frac{9}{3}$	

4) Jin is thinking of an improper fraction. What improper fraction could he be thinking of? Explain your reasoning.

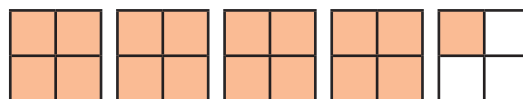


The wholes in my fraction have been divided into sixths. My fraction is worth more than 3 wholes but less than 4 wholes.

Convert Mixed Numbers to Improper Fractions

- 1) Use the sentence stems to help you convert the mixed numbers to improper fractions.

The whole number in this mixed number is ____.



4 wholes are the same as ____ quarters.

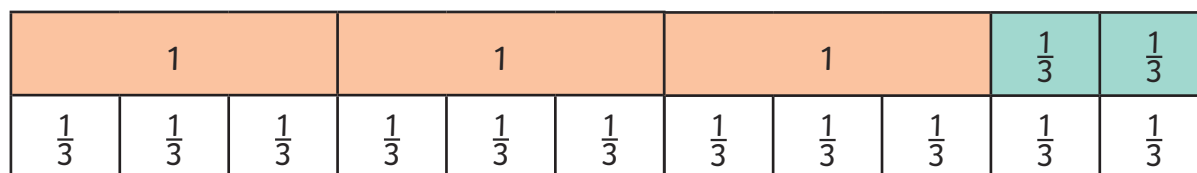
There is ____ extra quarter.

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

The improper fraction is $\frac{\square}{\square}$.

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

- 2) Match the correct improper fraction to the bar model, to complete the conversion.



$$\frac{12}{3} \quad \frac{11}{3} \quad \frac{9}{3} \quad \frac{7}{2}$$

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

- 3) Convert these mixed numbers to improper fractions using Jin's method.



I can multiply the whole number by the denominator and then add on the extra fractional parts.

1. $3 \times 5 = 15$

2. $15 + 2 = 17$

3. The improper fraction is 17 fifths

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

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

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

c) $4\frac{4}{5} = \frac{\square}{\square}$

- 4) Sara is trying to convert $6\frac{2}{5}$ to an improper fraction. What mistake has she made? Explain what she should do to make it correct.



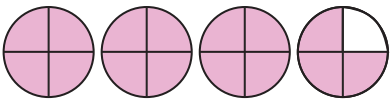
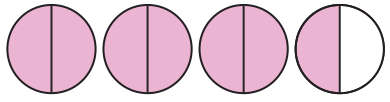
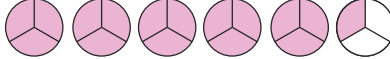
I can use my times tables to help me convert mixed numbers. $5 \times 2 = 10$ and then add 6 extra.

$$6\frac{2}{5} = \frac{16}{5}$$



Convert Improper Fractions to Mixed Numbers

- 1) Write the improper fraction and the mixed number represented by the shapes below.

	Improper Fraction		Mixed Number
a)			
b)			
c)			

- 3) Answer these questions, writing your answer as a mixed number.
- a) 32 children sit on benches of 6 in the park. They fill all the benches where possible. Show how the benches are filled using a mixed number.

- b) An ice cream van sells sundaes. Each sundae has one-quarter of a chocolate stick on top. At the end of the day, the ice cream seller works out that they sold 27 sundaes. How many chocolate sticks did they use?

- c) A sports coach asks children to sort 81 footballs into bags of 7. They fill all the bags where possible. Show how the bags are filled using a mixed number.

- 2) Write the following improper fractions as a mixed number.

a) $\frac{22}{3}$ _____ b) $\frac{17}{8}$ _____ c) $\frac{31}{6}$ _____

d) $\frac{24}{5}$ _____ e) $\frac{15}{2}$ _____ f) $\frac{21}{4}$ _____

- 4) The answer is $8\frac{3}{4}$. What could the question be?

- 5) Is this statement true or false? Explain your answer.

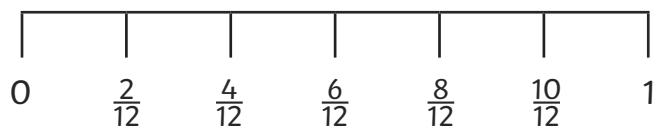
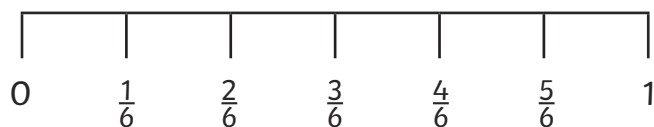
$\frac{14}{5} = 2\frac{6}{5}$ _____

- 6) Create your own converting improper fractions to mixed numbers word problem for a friend to answer. Include a representation that may help them.



Equivalent Fractions on a Number Line

1) Write the equivalent fractions below.

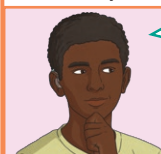


a) $\frac{1}{6} = \boxed{}$ b) $\frac{3}{6} = \boxed{}$

c) $\frac{4}{12} = \boxed{}$ d) $\frac{8}{12} = \boxed{}$

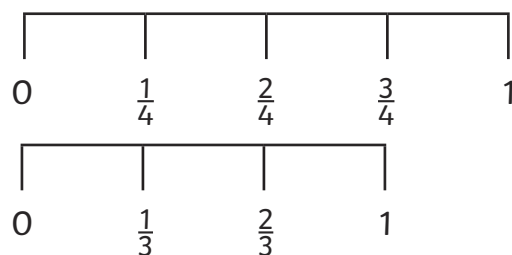
e) Write one more equivalent fraction using the number lines above.

2) Do you agree with Anton's statement? Explain your answer.

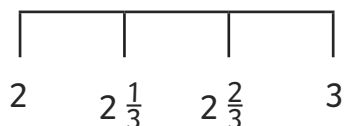
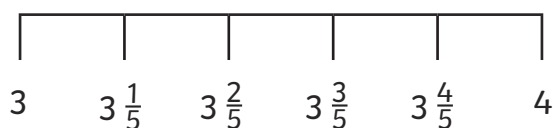


Anton

$\frac{2}{4}$ is equal to $\frac{2}{3}$.



3) Ruby is using these number lines to work out equivalent fractions. She thinks they will help her. Do you agree? Explain your answer.

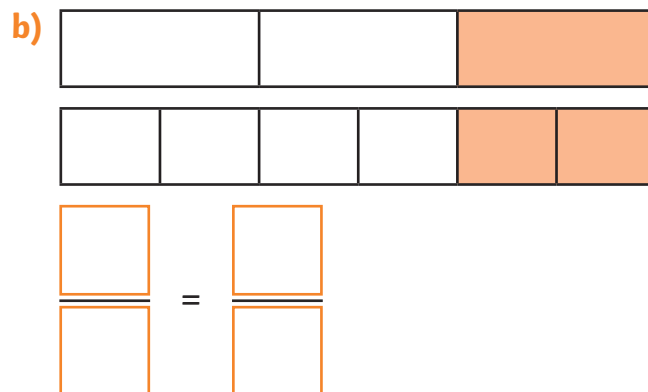
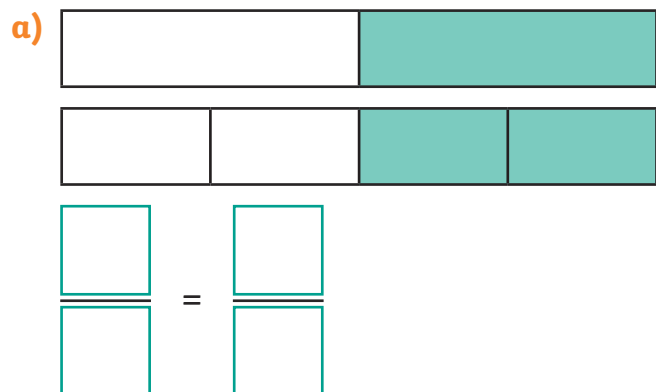


4) The answer is $2\frac{1}{5} = 2\frac{2}{10}$. What could the question be?

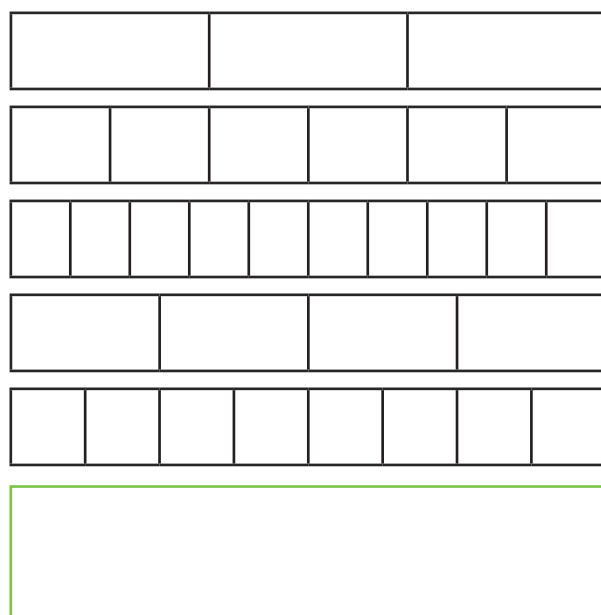
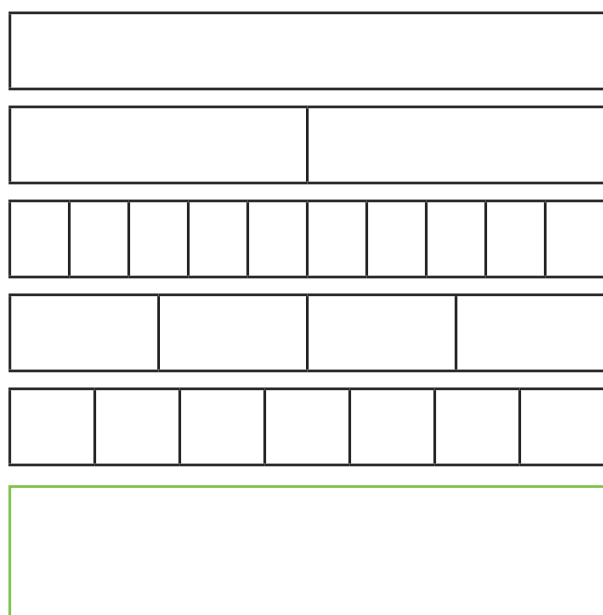
5) Jin says that $\frac{4}{6}$ is equal to $\frac{6}{12}$. Do you agree? Draw a double number line to prove it.

Equivalent Fraction Families

1) Write the fraction that each bar model shows.



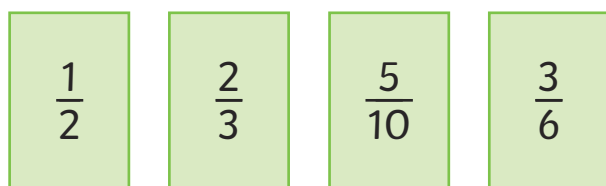
2) Find and colour all the equivalent fractions in each set. Write the equivalent fractions.



3) Do you agree with Sara? Explain your answer.



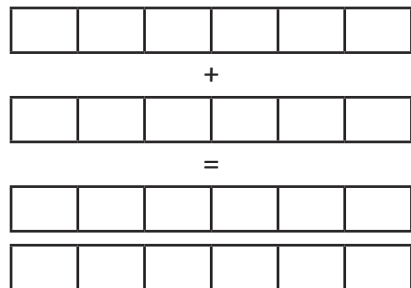
Only two of the fraction cards are equivalent to $\frac{2}{4}$.



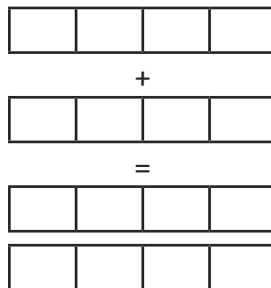
Add Two or More Fractions

1) Use the bar models to add the fractions. Shade each bar to show your method.

a) $\frac{2}{6} + \frac{5}{6} =$



b) $\frac{2}{4} + \frac{3}{4} =$

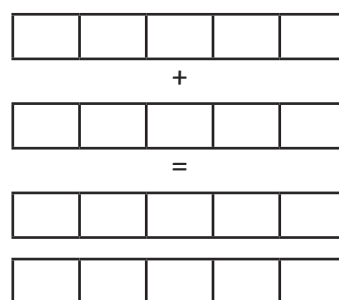


2) Ruby is adding fractions.



Ruby

$$\frac{2}{5} + \frac{4}{5} = \frac{6}{10}$$



Is Ruby correct? Give reasons for your answer. Shade the bar models to prove it.

3) Draw a number line to show how you would solve the following calculation

$$\frac{3}{10} + \frac{4}{10} + \frac{5}{10} + \frac{1}{10} =$$

--

4) Which fractions could be hidden underneath the paint splats? Find all possibilities.

$$\frac{3}{16} + \text{splat} + \text{splat} + \frac{1}{16} = \frac{14}{16}$$

--

Add Fractions and Mixed Numbers

1) Add the missing values to the calculations.

$$a) 1 \frac{3}{5} + \frac{1}{5} = 1 \frac{\boxed{}}{\boxed{5}}$$

$$b) 2 \frac{2}{7} + \frac{3}{7} = \boxed{} \frac{\boxed{5}}{\boxed{7}}$$

$$c) 3 \frac{5}{9} + \frac{3}{9} = 3 \frac{\boxed{}}{\boxed{}}$$

$$d) 4 \frac{3}{11} + \frac{6}{11} = \boxed{} \frac{\boxed{}}{\boxed{}}$$

2) Mia and Anton both have some pizza.



Mia

I have three whole pizzas and two-fifths of a pizza.



Anton

I have four-fifths of a pizza.

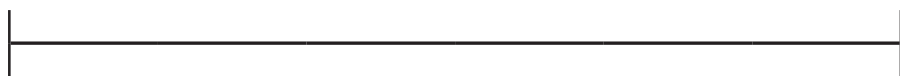
How much pizza do Mia and Anton have altogether?



$$\boxed{} \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \boxed{} \frac{\boxed{}}{\boxed{}}$$

3) Solve these calculations using the number line method. Show how you could partition the proper fraction to make the calculation easier.

$$a) 4 \frac{4}{8} + \frac{6}{8} = \boxed{} \frac{\boxed{}}{\boxed{}}$$



$$b) 3 \frac{4}{6} + \frac{5}{6} = \boxed{} \frac{\boxed{}}{\boxed{}}$$



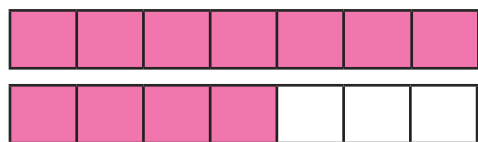
4) Find three different addition calculations that total this mixed number. Each calculation must have a mixed number and a proper fraction.

$3 \frac{4}{6}$

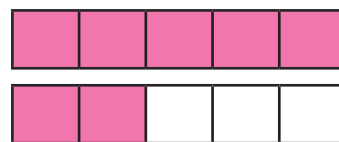
Subtract Two Fractions

- 1) Subtract the fractions by taking away. Cross out the correct amount on the bar models and then fill in the missing fractions in the statements.

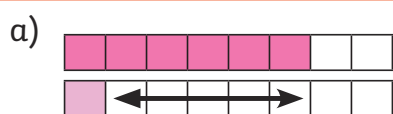
a) $\frac{11}{7} - \frac{6}{7} = \frac{\boxed{}}{\boxed{}}$



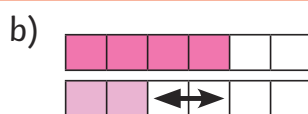
b) $\frac{7}{5} - \frac{6}{5} = \frac{\boxed{}}{\boxed{}}$



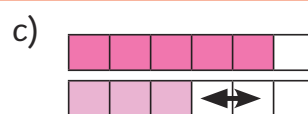
- 2) Find the difference between the 2 fractions. What subtraction statements do they represent?



$$\frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}}$$

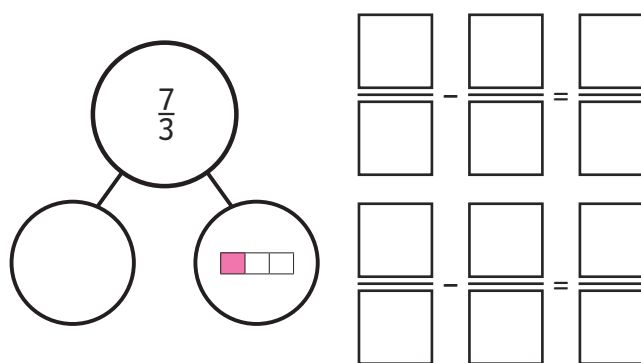
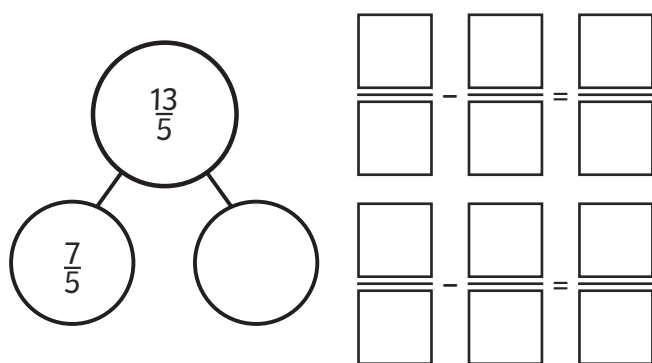


$$\frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}}$$



$$\frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}}$$

- 3) Complete the part-whole models and then write the 2 subtraction statements they represent.



- 4) What could the missing numerators be? Write 3 different solutions.

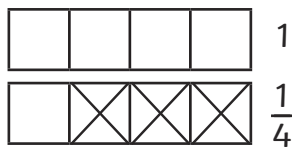
$$\frac{\boxed{}}{6} - \frac{\boxed{}}{6} = \frac{5}{6}$$

- 5)  A fraction has been subtracted. The answer is $\frac{2}{8}$. What could the question be?

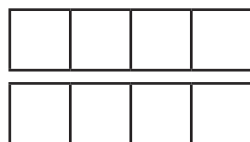
Subtract from Whole Amounts

- 1) Complete the subtraction calculations using the bar models to support you. The first has been done for you as an example.

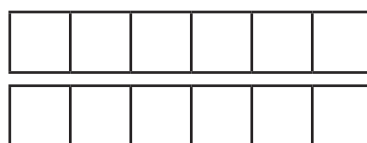
a) $2 - \frac{3}{4} = 1\frac{1}{4}$



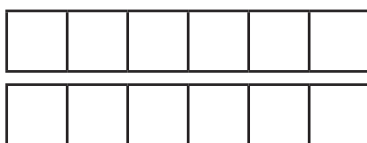
b) $2 - \frac{2}{4} = \square$



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



- 2) Ajani has drawn two bar models. Write three possible subtraction calculations using the bar models.



- 3) Oliver has 4 pizzas. They cut $\frac{2}{3}$ for Sara. How much is left?



- 4) Circle the odd one out and explain why.

$\frac{3}{6} - \frac{2}{6}$

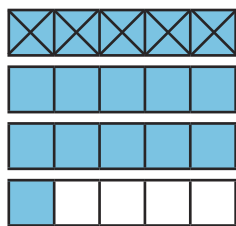
$3\frac{1}{6} - \frac{18}{6}$

$20\frac{1}{6} - \frac{3}{6}$

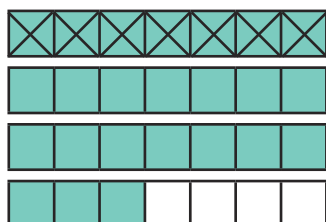


Subtract from Mixed Numbers

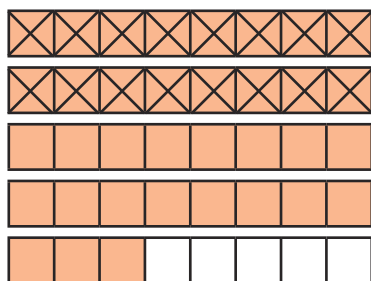
- 1) Complete the calculations and draw lines to match the bar models to the correct subtraction.



$$3\frac{3}{7} - 1 = \square$$

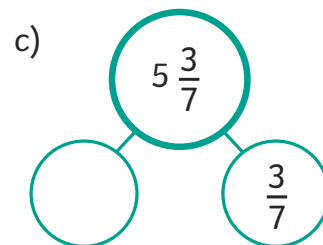
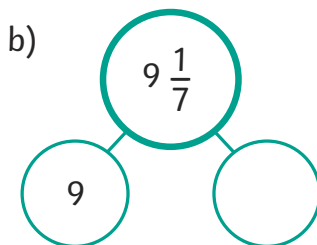
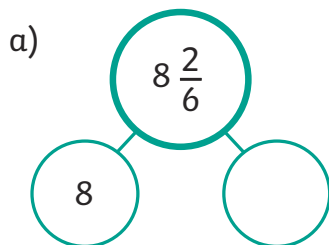


$$4\frac{3}{8} - 2 = \square$$



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

- 2) Complete the part-whole models to show the missing number or fraction.

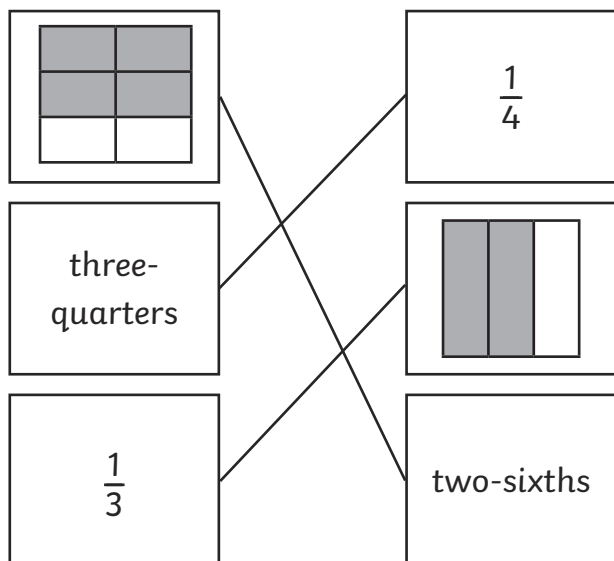


- 3) Ruby ran $5\frac{3}{4}$ kilometres. Mia said she ran $\frac{2}{4}$ less so she ran $4\frac{3}{4}$. Is she correct? Explain your reasoning.

- 4) Create your own 'subtract from a mixed number' word problem for a friend to answer.

Understand the Whole **Answers**

1) Match the cards that equal a whole.



2) Filling in the missing fraction to complete the statements.

$$\frac{3}{5} + \frac{\boxed{2}}{\boxed{5}} = 1$$

$$1 = \frac{2}{7} + \frac{\boxed{5}}{\boxed{7}}$$

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

3) Shade the whole in different ways and write the matching statements underneath.

Statements could be:

$$\frac{1}{7} + \frac{6}{7} = 1$$

$$\frac{5}{7} + \frac{2}{7} = 1$$

$$\frac{2}{7} + \frac{5}{7} = 1$$

$$\frac{6}{7} + \frac{1}{7} = 1$$

$$\frac{3}{7} + \frac{4}{7} = 1$$

$$\frac{1}{7} + \frac{6}{7} = 1$$

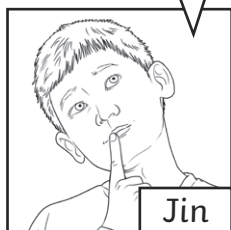
$$\frac{4}{7} + \frac{3}{7} = 1$$

4) Jin says:

Do you agree with Jin?
Explain your reasoning.

Jin is incorrect. There are 7 parts needed to make a whole but these are tenths, not thirds, as the whole has been divided into 10 parts.

Seven-thirds are needed to make a whole.

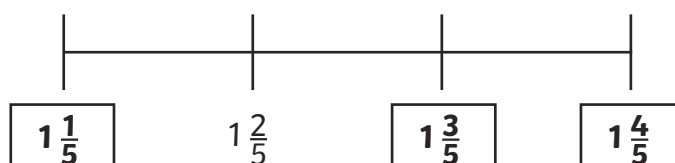
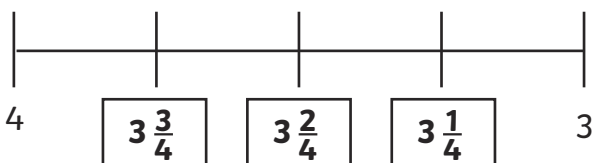
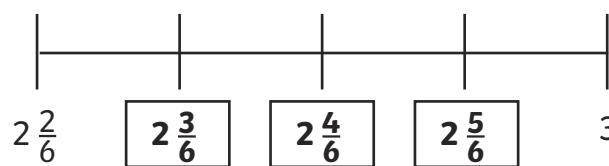


Extra Challenge

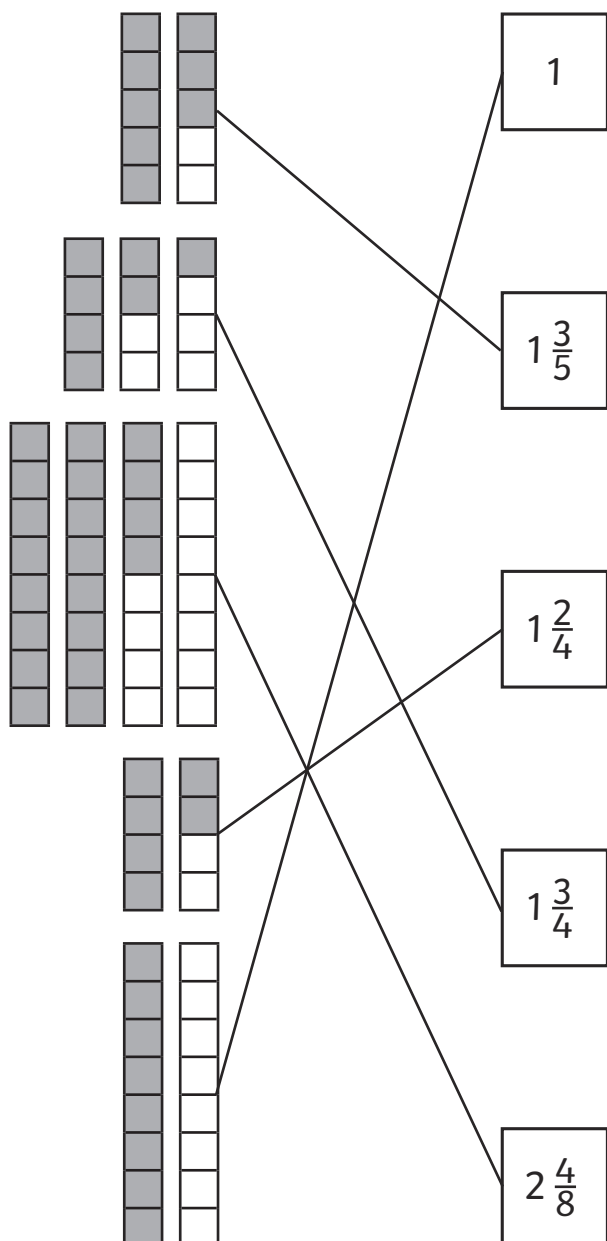
Multiple answers accepted, e.g. $\frac{3}{5}$, $\frac{3}{7}$, $\frac{3}{10}$. The numerator must be at least 3 because 3 shaded parts are visible. The denominator must be at least 2 more (5) because 2 more unshaded parts are visible. Answers are correct as long as the numerator is 3 (or more) and the denominator is 5 or more.

Count Beyond 1 **Answers**

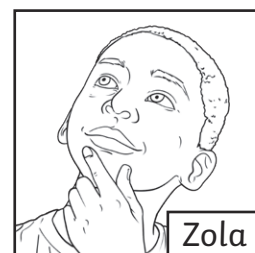
4) Label the missing values.



5) Match the fractions to the correct image.



6) Zola has created a number line. Spot the mistake that they has made.



$3\frac{3}{3}$ is the same as 4 wholes. Zola should not have included 3 wholes and 3 thirds.

Extra Challenge

Hena and Kai share three mini pizzas. Between them, they eat thirteen-fifths.

What fraction of the pizzas has Hena eaten?

I have eaten two pizzas.



3 fifths

Partition a Mixed Number **Answers**

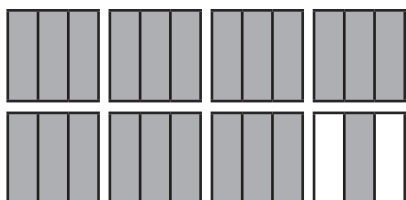
1) Identify the mixed numbers shown.



$$2\frac{4}{5}$$

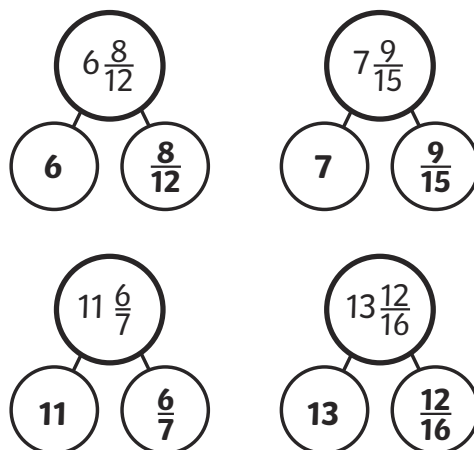


$$3\frac{4}{6}$$



$$7\frac{1}{3}$$

2) Partition the mixed numbers into whole numbers and proper fractions.



3) Complete the part-whole models to show 5 different ways of partitioning $4\frac{5}{8}$.

Here are all the different ways that children could partition the mixed number:

$$4 \text{ and } \frac{1}{8} \text{ and } \frac{4}{8}$$

$$4 \text{ and } \frac{3}{8} \text{ and } \frac{2}{8}$$

$$3 \text{ and } 1 \text{ and } \frac{1}{8} \text{ and } \frac{4}{8}$$

$$3 \text{ and } 1 \text{ and } \frac{3}{8} \text{ and } \frac{2}{8}$$

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

$$2 \text{ and } 2 \text{ and } \frac{3}{8} \text{ and } \frac{2}{8}$$

$$4 \text{ and } \frac{2}{8} \text{ and } \frac{3}{8}$$

$$4 \text{ and } \frac{4}{8} \text{ and } \frac{1}{8}$$

$$3 \text{ and } 1 \text{ and } \frac{2}{8} \text{ and } \frac{3}{8}$$

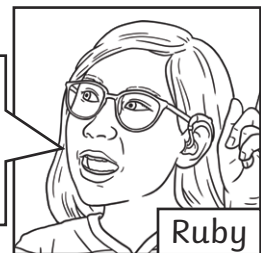
$$3 \text{ and } 1 \text{ and } \frac{4}{8} \text{ and } \frac{1}{8}$$

$$2 \text{ and } 2 \text{ and } \frac{2}{8} \text{ and } \frac{3}{8}$$

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

4) Ruby says:

Mixed numbers can only be partitioned into either 2 or 3 parts.



Ruby

Is Ruby correct? Give reasons for your answer.

Ruby is partly correct. Mixed numbers can be partitioned in more than 3 ways depending on the values of the whole number and the proper fraction.

Extra Challenge

One of the missing numbers could be $2\frac{3}{15}$.



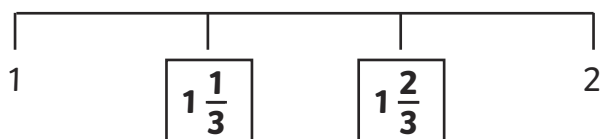
Oli

Is Oli correct? Give reasons for your answer.

Oli is incorrect. $\frac{3}{15} + \frac{6}{15} = \frac{9}{15}$ which is more than the proper fraction shown in the 'whole' section of the part-whole model.

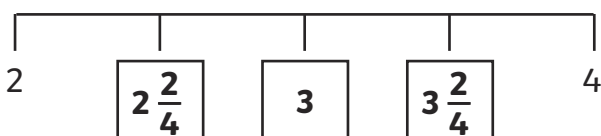
Number Lines with Mixed Numbers **Answers**

- 1) Label the missing values and complete the sentences to match.



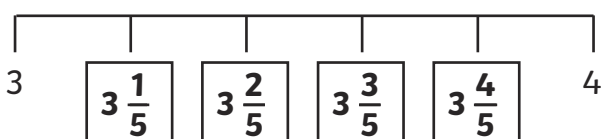
The expression is $1 \div 3$.

Each interval is worth $\frac{1}{3}$.



The expression is $2 \div 4$.

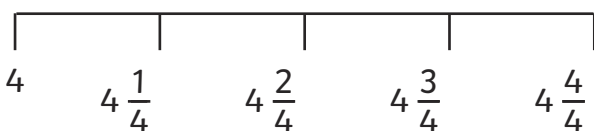
Each interval is worth $\frac{2}{4}$ or $\frac{1}{2}$.



The expression is $1 \div 5$.

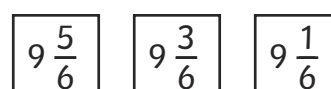
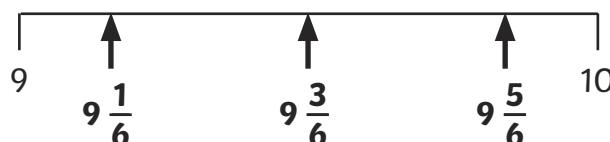
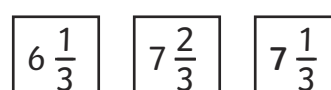
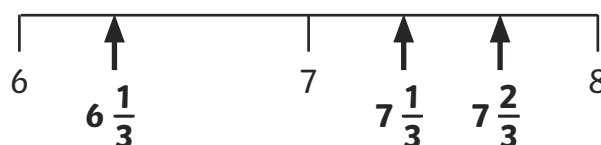
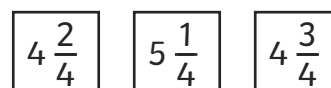
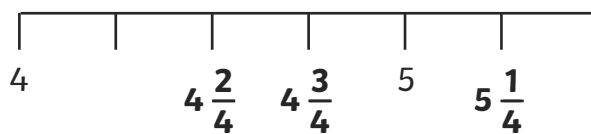
Each interval is worth $\frac{1}{5}$.

- 3) Charlie has completed a number line. Spot the mistake that he has made.



The final value should be recorded as 5 because $4 \frac{4}{4}$ is equivalent to 5 wholes.

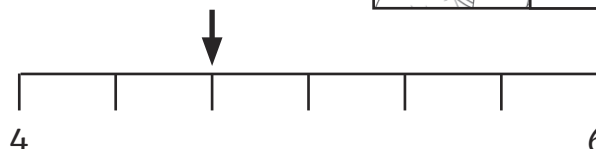
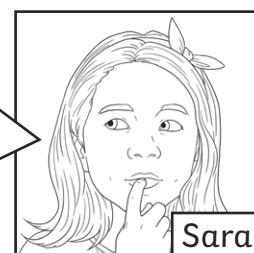
- 2) Position the fractions on the number lines.



Extra Challenge

Do you agree with Sara?

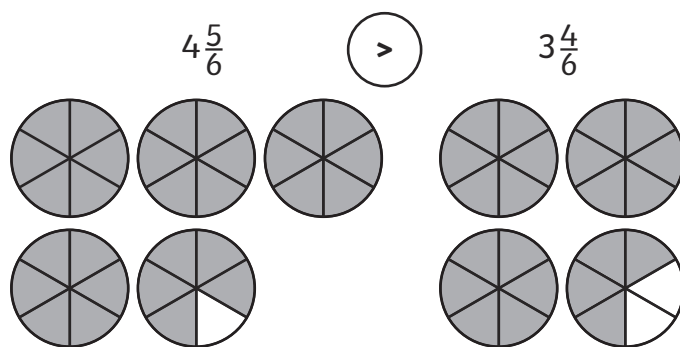
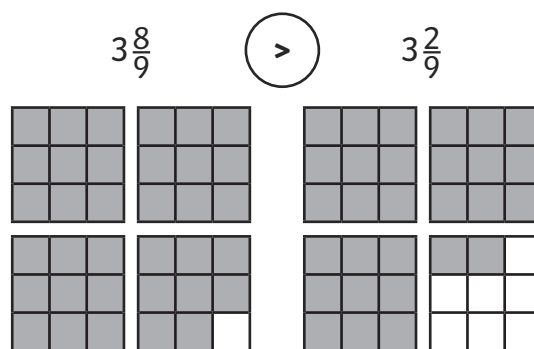
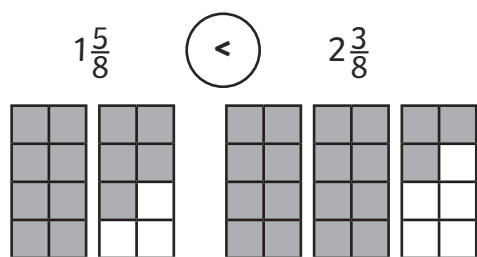
The arrow is pointing to $4 \frac{2}{6}$.



Sara is incorrect. The difference between 4 and 6 is 2 and there are 6 intervals. Each interval is worth $\frac{2}{6}$ but Sara has calculated the intervals as being worth $\frac{1}{6}$. The arrow is pointing to $4 \frac{4}{6}$.

Compare and Order Mixed Numbers **Answers**

- 1) Shade the models to represent the mixed numbers. Insert < or > to complete the statements.

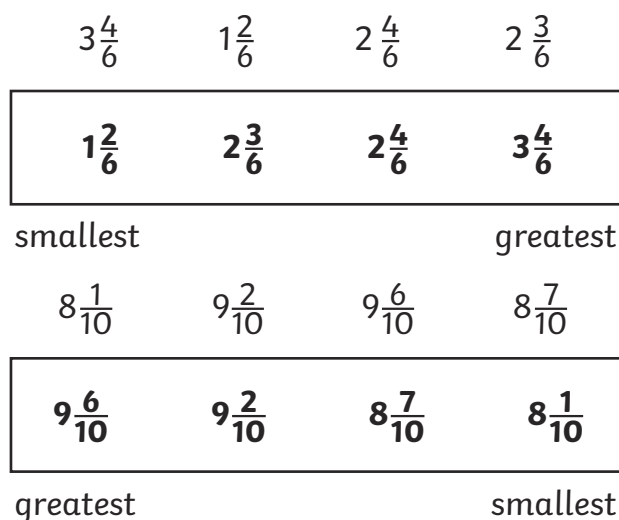


- 2) Write < or > to compare the mixed numbers.

$2\frac{4}{6}$ $<$ $4\frac{1}{6}$ $6\frac{3}{12}$ $>$ $4\frac{3}{12}$

$5\frac{3}{5}$ $>$ $2\frac{2}{10}$ $7\frac{5}{9}$ $<$ $9\frac{1}{2}$

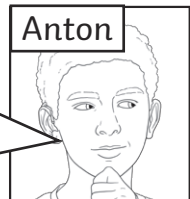
- 3) Order the mixed numbers.



Extra Challenge

The missing mixed number could be $3\frac{8}{9}$.

Anton



$3\frac{1}{8} < \boxed{} < 3\frac{7}{9}$

Is Anton correct? Give reasons for your answer.

Anton is incorrect. $3\frac{8}{9}$ cannot be the missing value. The missing value needs to be greater than $3\frac{1}{8}$ and smaller than $3\frac{7}{9}$. $3\frac{8}{9}$ is greater than $3\frac{7}{9}$.

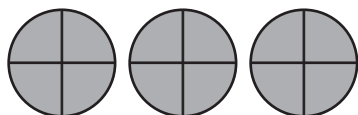
- 4) Hena has completed the statement below.

$5\frac{6}{16} < 4\frac{15}{16}$

Hena is incorrect. She has only looked at the proper fraction parts of the mixed numbers and has not compared the whole numbers.

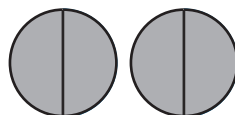
Understand Improper Fractions **Answers**

1) Complete the sentences for each representation.



Each whole is divided into **4** equal parts. Each part is worth 1 **quarter**.
There are **4** **quarters** in 1 whole
so there are **12** **quarters** altogether.

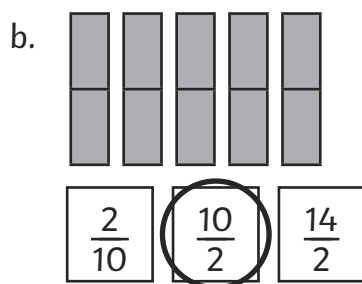
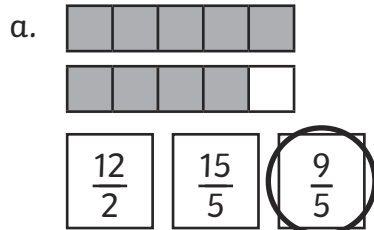
This improper fraction is: $\frac{12}{4}$.



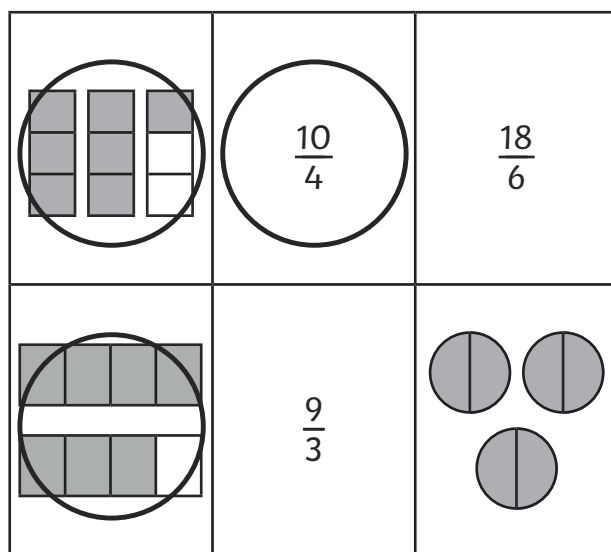
Each whole is divided into **2** equal parts. Each part is worth 1 **half**.
There are **2** **halves** in 1 whole
so there are **4** **halves** altogether.

This improper fraction is: $\frac{4}{2}$.

2) Circle the improper fraction for each representation.

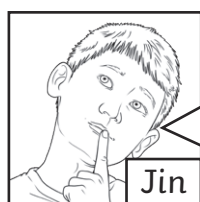


3) Circle the improper fractions which are less than 3 wholes.



4) Jin is thinking of an improper fraction.

What improper fraction could he be thinking of? Explain your reasoning.



The wholes in my fraction have been divided into sixths. My fraction is worth more than 3 wholes but less than 4 wholes.

Jin must be thinking of one of these improper fractions: $\frac{19}{6}$, $\frac{20}{6}$, $\frac{21}{6}$, $\frac{22}{6}$, $\frac{23}{6}$.
The denominator must be 6 because his wholes have been divided into sixths.
1 whole is equal to 6 sixths. Therefore, 3 wholes are equal to 18 sixths and 4 wholes are equal to 24 sixths.
His fraction must be between these amounts.



Convert Mixed Numbers to Improper Fractions **Answers**

- 1) Use the sentence stems to help you convert the mixed numbers to improper fractions.

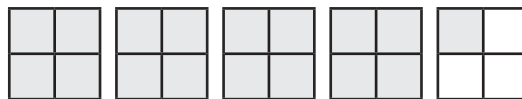
The whole number in this mixed number is **4**.

4 wholes are the same as **16** quarters.

There is **1** extra quarter.

$$\frac{16}{4} + \frac{1}{4} = \frac{17}{4}$$

The improper fraction is $\frac{17}{4}$.



$$4\frac{1}{4} = \frac{17}{4}$$

- 2) Match the correct improper fraction to the bar model, to complete the conversion.

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

$\frac{12}{3}$	$\frac{11}{3}$	$\frac{9}{3}$	$\frac{7}{2}$
----------------	----------------	---------------	---------------

$$3\frac{2}{3} = \frac{11}{3}$$

- 3) Convert these mixed numbers to improper fractions using Jin's method.



Jin

I can multiply the whole number by the denominator and then add on the extra fractional parts.

1. $3 \times 5 = 15$

2. $15 + 2 = 17$

3. The improper fraction is 17 fifths

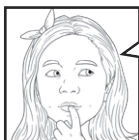
$$3\frac{2}{5} = \frac{17}{5}$$

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

b) $3\frac{4}{5} = \frac{19}{5}$

c) $4\frac{4}{5} = \frac{24}{5}$

- 4) Sara is trying to convert $6\frac{2}{5}$ to an improper fraction. What mistake has she made? Explain what she should do to make it correct.



Sara

I can use my times tables to help me convert mixed numbers. $5 \times 2 = 10$ and then add 6 extra.

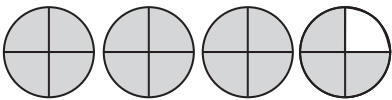
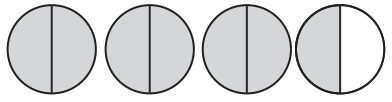
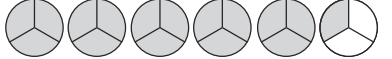
$$6\frac{2}{5} = \frac{16}{5}$$

Sara multiplied her denominator by the numerator instead of by the whole number (5 multiplied by 2 is 10, then she added the whole number 6 onto 10 to make 16). She should have multiplied the denominator by the whole number (5 multiplied by 6 to make 30) then added 2 to make 32 ($\frac{32}{5}$).



Convert Improper Fractions to Mixed Numbers **Answers**

- 1) Write the improper fraction and the mixed number represented by the shapes below.

	Improper Fraction		Mixed Number
a)	$\frac{15}{4}$		$3\frac{3}{4}$
b)	$\frac{7}{2}$		$3\frac{1}{2}$
c)	$\frac{16}{3}$		$5\frac{1}{3}$

- 3) Answer these questions, writing your answer as a mixed number.

- a) 32 children sit on benches of 6 in the park. They fill all the benches where possible. Show how the benches are filled using a mixed number.

$$5\frac{2}{6}$$

- b) An ice cream van sells sundaes. Each sundae has one-quarter of a chocolate stick on top. At the end of the day, the ice cream seller works out that they sold 27 sundaes. How many chocolate sticks did they use?

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

- c) A sports coach asks children to sort 81 footballs into bags of 7. They fill all the bags where possible. Show how the bags are filled using a mixed number.

$$11\frac{4}{7}$$

- 2) Write the following improper fractions as a mixed number.

a) $\frac{22}{3} \quad 7\frac{1}{3}$

b) $\frac{17}{8} \quad 2\frac{1}{8}$

c) $\frac{31}{6} \quad 5\frac{1}{6}$

d) $\frac{24}{5} \quad 4\frac{4}{5}$

e) $\frac{15}{2} \quad 7\frac{1}{2}$

f) $\frac{21}{4} \quad 5\frac{1}{4}$ _____

- 4) The answer is $8\frac{3}{4}$. What could the question be?

Answers will vary - accept any correct answer.

- 5) Is this statement true or false? Explain your answer.

$$\frac{14}{5} = 2\frac{6}{5} \quad \text{False. } \frac{14}{5} = 2\frac{4}{5}$$

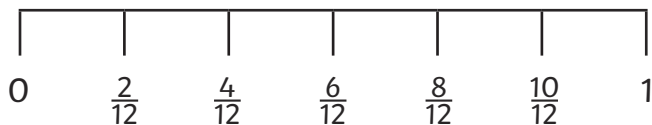
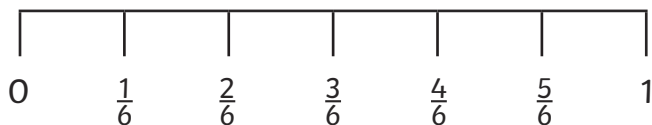
- 6) Create your own converting improper fractions to mixed numbers word problem for a friend to answer. Include a representation that may help them.

Representations will vary - accept any representation which helps to answer the question.

Answers will vary - accept any correct answer.

Equivalent Fractions on a Number Line **Answers**

1) Write the equivalent fractions below.



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

b) $\frac{3}{6} = \frac{6}{12}$

c) $\frac{4}{12} = \frac{2}{6}$

d) $\frac{8}{12} = \frac{4}{6}$

e) Write one more equivalent fraction using the number lines above.

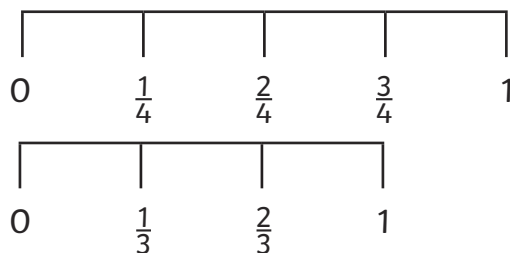
$\frac{5}{6} = \frac{10}{12}$

2) Do you agree with Anton's statement? Explain your answer.



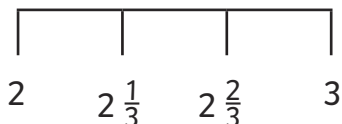
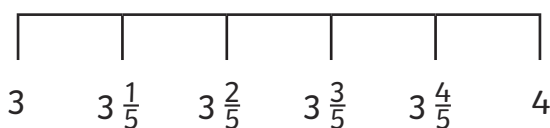
Anton

$\frac{2}{4}$ is equal to $\frac{2}{3}$.



Anton is incorrect. He has not aligned his number lines correctly. $\frac{2}{4}$ is equal to $\frac{1}{2}$. There is no equivalent to this in thirds.

3) Ruby is using these number lines to work out equivalent fractions. She thinks they will help her. Do you agree? Explain your answer.

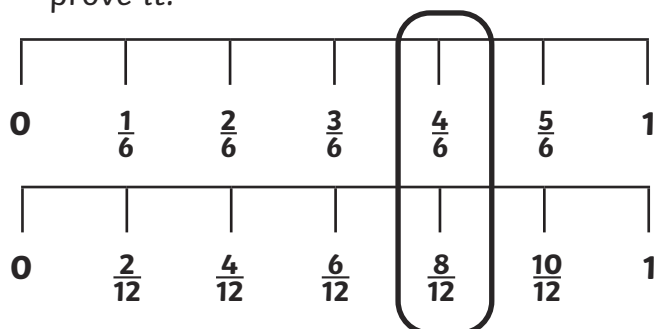


The number lines are not aligned correctly so they will not help Ruby. She needs to make sure the whole numbers are in line with each other.

4) The answer is $2\frac{1}{5} = 2\frac{2}{10}$. What could the question be?

Answers will vary. Accept any correct answer. Example: Can you name any equivalent fraction?

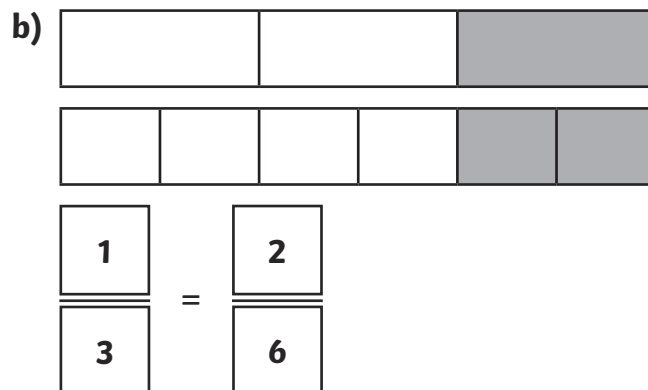
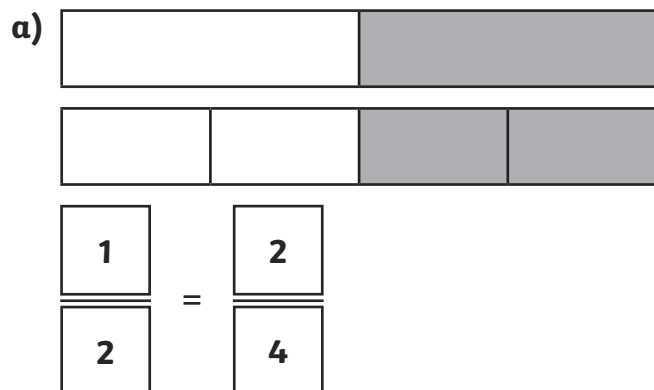
5) Jin says that $\frac{4}{6}$ is equal to $\frac{6}{12}$. Do you agree? Draw a double number line to prove it.



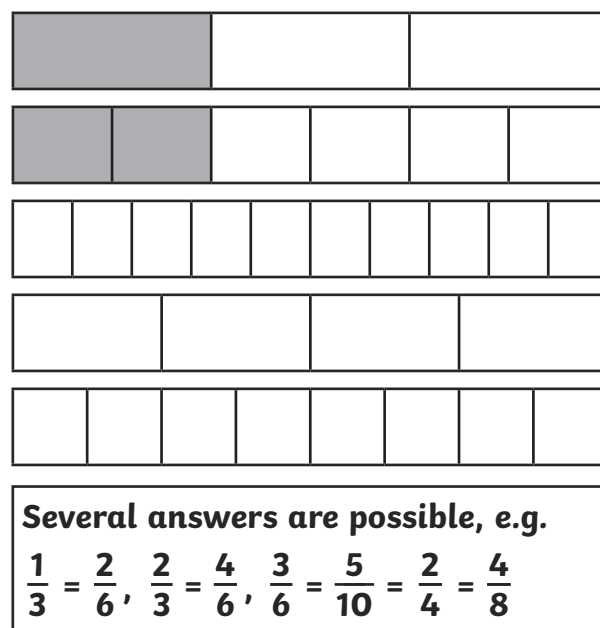
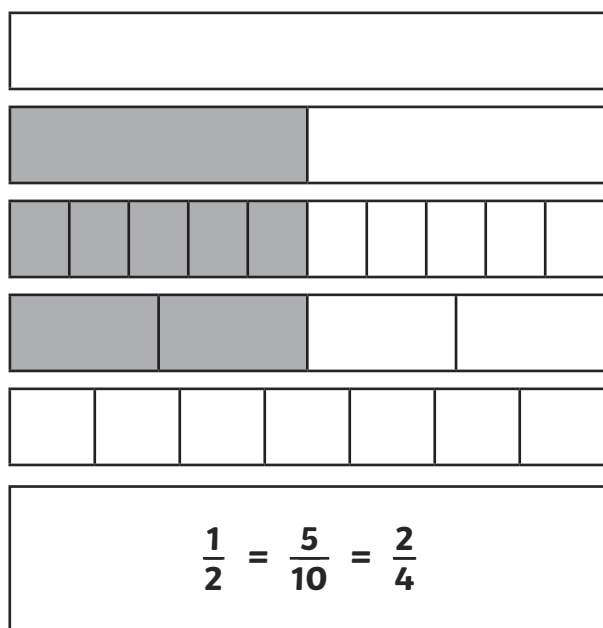
Jin is incorrect. $\frac{4}{6}$ is equal to $\frac{8}{12}$.

Equivalent Fraction Families **Answers**

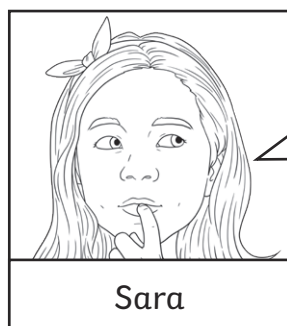
1) Write the fraction that each bar model shows.



2) Find and colour all the equivalent fractions in each set. Write the equivalent fractions.

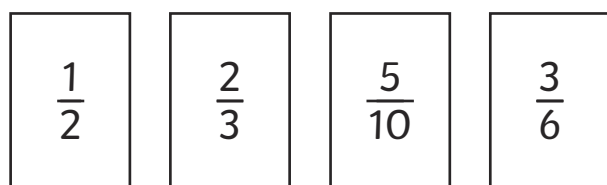


3) Do you agree with Sara? Explain your answer.



Only two of the fraction cards are equivalent to $\frac{2}{4}$.

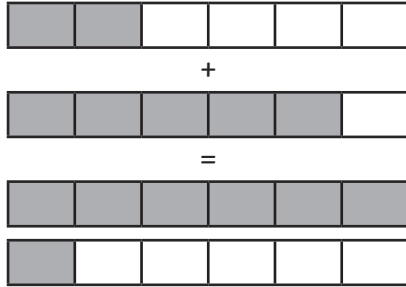
I do not agree with Sara. 3 fraction cards are equivalent to $\frac{2}{4}$. They are $\frac{1}{2}$, $\frac{5}{10}$ and $\frac{3}{6}$.



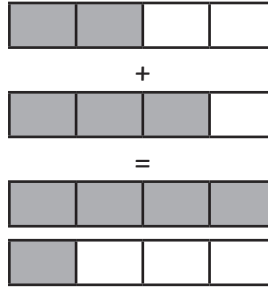
Add Two or More Fractions **Answers**

1) Use the bar models to add the fractions. Shade each bar to show your method.

a) $\frac{2}{6} + \frac{5}{6} = \frac{\boxed{7}}{\boxed{6}}$



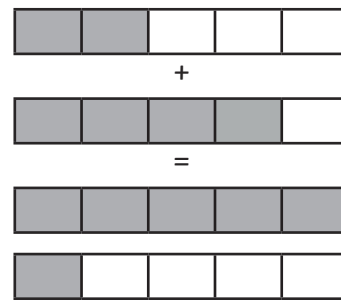
b) $\frac{2}{4} + \frac{3}{4} = \frac{\boxed{5}}{\boxed{4}}$



2) Ruby is adding fractions.

Ruby

$$\frac{2}{5} + \frac{4}{5} = \frac{6}{10}$$

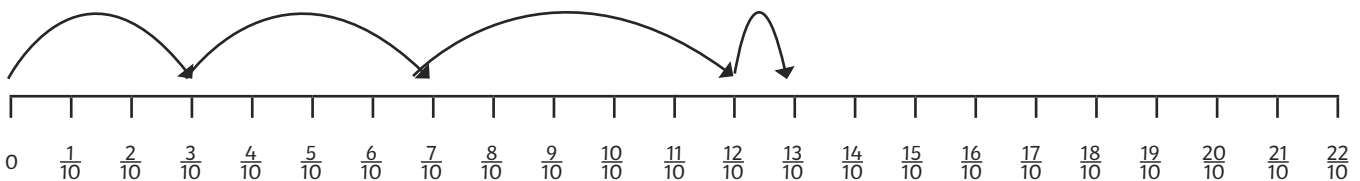


Is Ruby correct? Give reasons for your answer. ²/₅ Shaded the bar models to prove it.

Ruby is not correct. She does not need to add the denominators. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5}$

3) Draw a number line to show how you would solve the following calculation

$$\frac{3}{10} + \frac{4}{10} + \frac{5}{10} + \frac{1}{10} = \frac{13}{10}$$



4) Which fractions could be hidden underneath the paint splats? Find all possibilities.

$\frac{1}{16} \text{ and } \frac{9}{16}$

$\frac{3}{16} \text{ and } \frac{7}{16}$

$\frac{5}{16} \text{ and } \frac{5}{16}$

$\frac{7}{16} \text{ and } \frac{3}{16}$

$\frac{9}{16} \text{ and } \frac{1}{16}$

$\frac{2}{16} \text{ and } \frac{8}{16}$

$\frac{4}{16} \text{ and } \frac{6}{16}$

$\frac{6}{16} \text{ and } \frac{4}{16}$

$\frac{8}{16} \text{ and } \frac{2}{16}$

Add Fractions and Mixed Numbers **Answers**

1) Add the missing values to the calculations.

$$\text{a) } 1\frac{3}{5} + \frac{1}{5} = 1\frac{\boxed{4}}{\boxed{5}}$$

$$\text{b) } 2\frac{2}{7} + \frac{3}{7} = 2\frac{\boxed{5}}{\boxed{7}}$$

$$\text{c) } 3\frac{5}{9} + \frac{3}{9} = 3\frac{\boxed{8}}{\boxed{9}}$$

$$\text{d) } 4\frac{3}{11} + \frac{6}{11} = 4\frac{\boxed{9}}{\boxed{11}}$$

2) Mia and Anton both have some pizza.

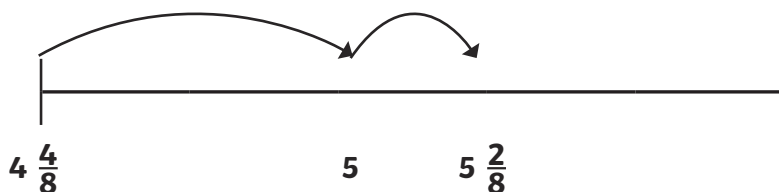
How much pizza do Mia and Anton have altogether?

$$3\frac{\boxed{2}}{\boxed{5}} + \frac{\boxed{4}}{\boxed{5}} = 4\frac{\boxed{1}}{\boxed{5}}$$

3) Solve these calculations using the number line method. Show how you could partition the proper fraction to make the calculation easier.

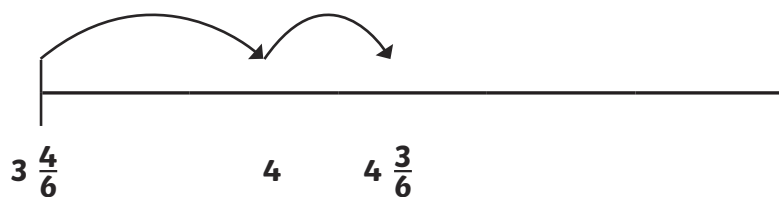
$$\text{a) } 4\frac{4}{8} + \frac{6}{8} = 5\frac{\boxed{2}}{\boxed{8}}$$

Diagram showing $\frac{6}{8}$ partitioned into $\frac{4}{8}$ and $\frac{2}{8}$.



$$\text{b) } 3\frac{4}{6} + \frac{5}{6} = 4\frac{\boxed{3}}{\boxed{6}}$$

Diagram showing $\frac{5}{6}$ partitioned into $\frac{2}{6}$ and $\frac{3}{6}$.



4) Find three different addition calculations that total this mixed number. Each calculation must have a mixed number and a proper fraction.

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

Subtract Two Fractions **Answers**

- 1) Subtract the fractions by taking away. Cross out the correct amount on the bar models and then fill in the missing fractions in the statements.

a) $\frac{11}{7} - \frac{6}{7} = \frac{\boxed{5}}{\boxed{7}}$

b) $\frac{7}{5} - \frac{6}{5} = \frac{\boxed{1}}{\boxed{5}}$

- 2) Find the difference between the 2 fractions. What subtraction statements do they represent?

a)

$\frac{6}{8} - \frac{1}{8} = \frac{5}{8}$

b)

$\frac{4}{6} - \frac{2}{6} = \frac{2}{6}$

c)

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

- 3) Complete the part-whole models and then write the 2 subtraction statements they represent.

$\frac{13}{5}$

$\frac{13}{5} - \frac{7}{5} = \frac{6}{5}$

$\frac{13}{5} - \frac{6}{5} = \frac{7}{5}$

$\frac{7}{3}$

$\frac{7}{3} - \frac{4}{3} = \frac{3}{3}$

$\frac{7}{3} - \frac{3}{3} = \frac{4}{3}$

- 4) What could the missing numerators be? Write 3 different solutions.

$\frac{\boxed{}}{6} - \frac{\boxed{}}{6} = \frac{5}{6}$

Answers will vary. Some possible answers include:

$\frac{6}{6} - \frac{1}{6} = \frac{5}{6}$ $\frac{7}{6} - \frac{2}{6} = \frac{5}{6}$ $\frac{8}{6} - \frac{3}{6} = \frac{5}{6}$

Zola

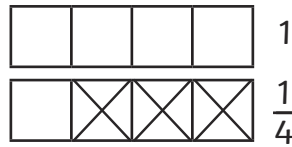
A fraction has been subtracted. The answer is $\frac{2}{8}$. What could the question be?

Answers will vary. Children should write a question which involves subtracting fractions to get the answer $\frac{2}{8}$.

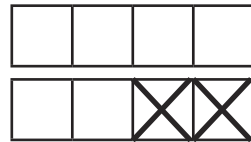
Subtract from Whole Amounts **Answers**

- 1) Complete the subtraction calculations using the bar models to support you. The first has been done for you as an example.

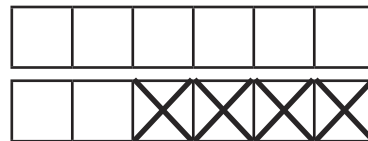
a) $2 - \frac{3}{4} = 1\frac{1}{4}$



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



c) $2 - \frac{4}{6} = \boxed{1\frac{2}{6}}$



- 2) Ajani has drawn two bar models. Write three possible subtraction calculations using the bar models.



There are many possible answers.

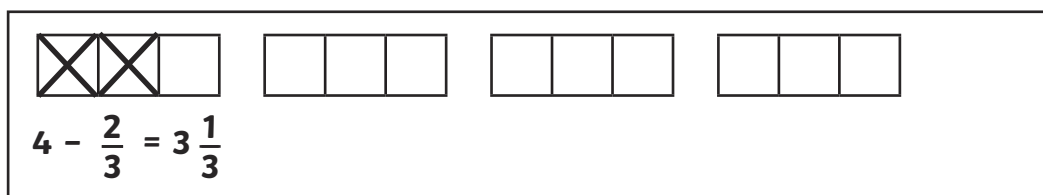
Here are some examples:

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

$$2 - \frac{4}{6} = 1\frac{2}{6}$$

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

- 3) Oliver has 4 pizzas. They cut $\frac{2}{3}$ for Sara. How much is left?



- 4) Circle the odd one out and explain why.

$$\frac{3}{6} - \frac{2}{6}$$

$$3\frac{1}{6} - \frac{18}{6}$$

$$20\frac{1}{6} - \frac{3}{6}$$

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

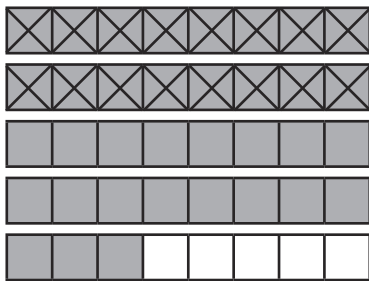
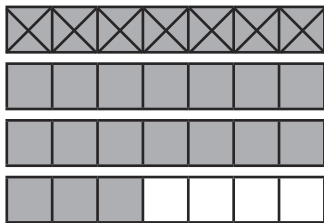
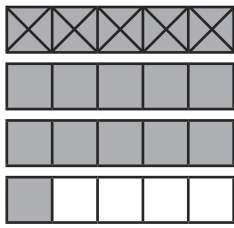
$$3\frac{1}{6} - \frac{18}{6} = \frac{1}{6}$$

$20\frac{1}{6} - \frac{3}{6} = 19\frac{4}{6}$, so this is the odd one out as the other two calculations have the answer of $\frac{1}{6}$.



Subtract from Mixed Numbers **Answers**

- 1) Complete the calculations and draw lines to match the bar models to the correct subtraction.

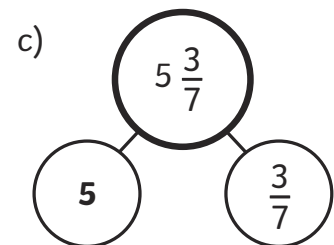
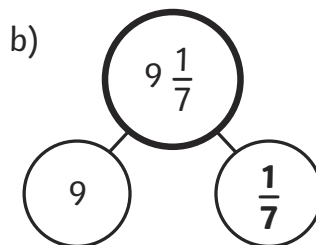
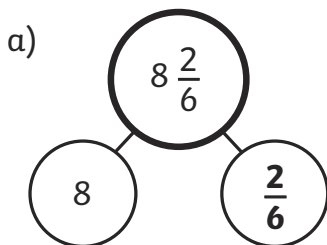


$$3\frac{3}{7} - 1 = 2\frac{3}{7}$$

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

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

- 2) Complete the part-whole models to show the missing number or fraction.



- 3) Ruby ran $5\frac{3}{4}$ kilometres. Mia said she ran $\frac{2}{4}$ less so she ran $4\frac{3}{4}$. Is she correct? Explain your reasoning.

Mia is not correct because $\frac{2}{4}$ less than $5\frac{3}{4}$ is $5\frac{1}{4}$.

- 4) Create your own 'subtract from a mixed number' word problem for a friend to answer.

Answers will vary.