Year 3

Fractions

Maths Activity Booklet

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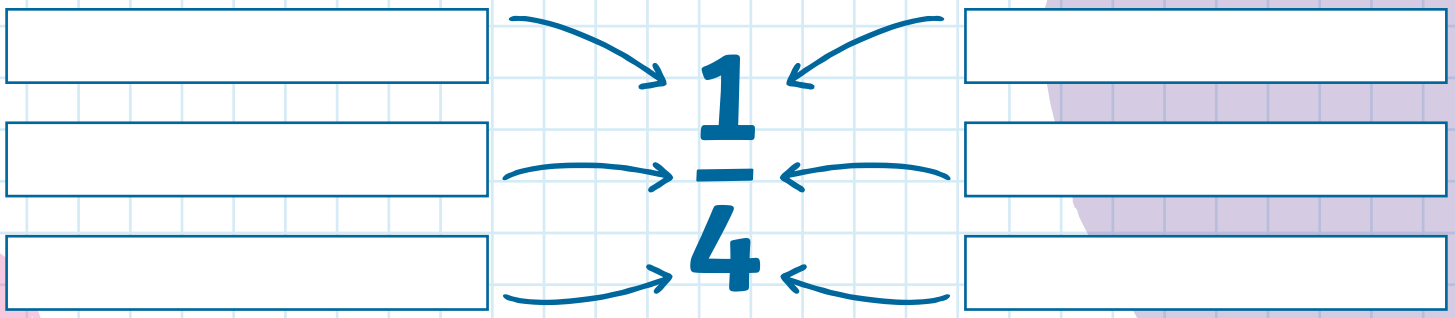
Contents

Features of a Fraction

1. Can you add the labels to this diagram of a fraction?

Labels

numerator	vinculum	number of parts we have
total parts in a whole	denominator	fraction bar



2. Which of the images below is showing the fraction $\frac{1}{4}$?
Put a circle around the correct answer.

3. How did you know?

4. Fill in the gaps in these sentences to describe a fraction.

A fraction is a number that is used to show a _____ number that has been divided into _____ parts. A fraction is made up of a top number called the _____ and a bottom number called the _____, which are separated by a horizontal line called a _____ or a _____.

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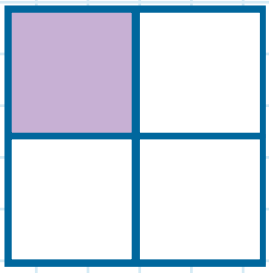
Unit Fractions vs Non-Unit Fractions

Complete the gaps in these sentences to find out what a unit fraction is.

1. 

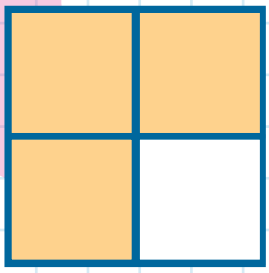
There is _____ part shaded.

There are _____ equal parts in total.

The image shows _____ out of _____ equal parts is shaded.

The fraction is ___ .

This is a **unit fraction**.

2. 

There are _____ parts shaded.

There are _____ equal parts in total.

The image shows _____ out of _____ equal parts are shaded.

The fraction is ___ .

This is a **non-unit fraction**.

3. Circle the unit fractions below.

$\frac{1}{5}$ $\frac{2}{3}$ $\frac{1}{8}$ $\frac{1}{2}$ $\frac{4}{5}$ $\frac{2}{6}$ $\frac{1}{3}$ $\frac{3}{4}$

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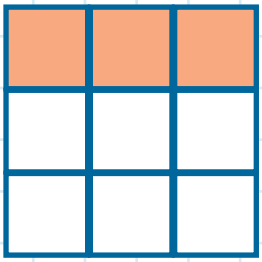
4. What do you notice about unit fractions?

5. Does this image show a unit fraction?



Yes No

How do you know?

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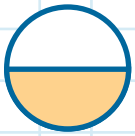
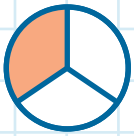
Comparing and Ordering Unit Fractions

1. Which is the **largest** unit fraction? Write down the fractions shown and then tick the correct answer.

Image

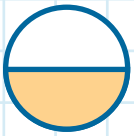

Write the fraction shown.

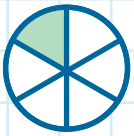
Tick the largest.

2. What do you notice about the largest unit fraction?

The largest unit fraction has the _____ denominator.

3. Can you order these unit fractions from smallest to largest? 1 being the smallest and 5 being the largest.

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4. Can you order these unit fractions from smallest to largest? 1 being the smallest and 5 being the largest.

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

5. Can you order these unit fractions from largest to smallest? 1 being the largest and 5 being the smallest.

$\frac{1}{2}$	$\frac{1}{6}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{3}$

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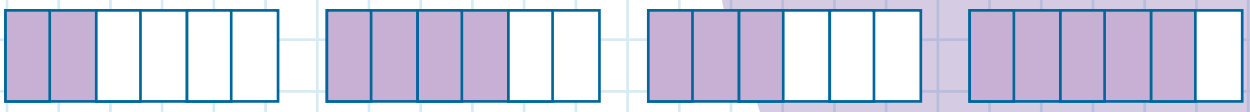
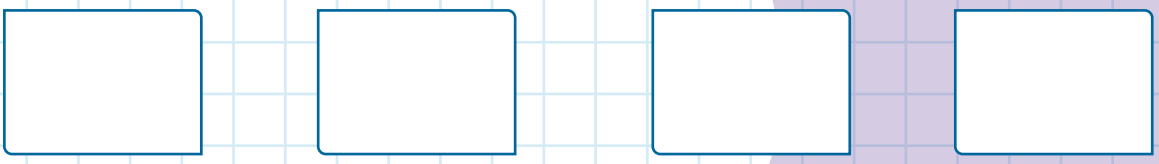
Comparing and Ordering Non-Unit Fractions

1. Which is the largest non-unit fraction? Write down the fractions shown and then tick the correct answer.

Image



Write the fraction shown.



Tick the largest.

2. What do you notice about the denominators in these non-unit fractions?

3. What do you notice about the largest non-unit fraction in this set?

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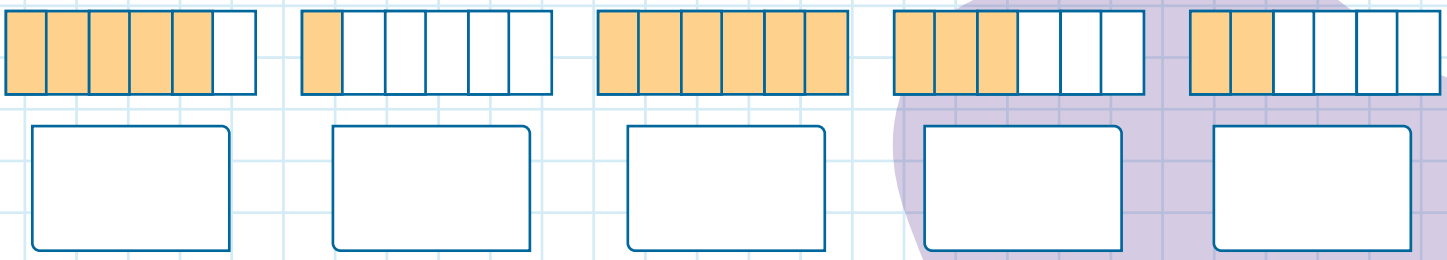
4. Can you order these non-unit fractions from **smallest** to **largest**? 1 being the smallest and 5 being the largest.



5. Can you order these non-unit fractions from **smallest** to **largest**? 1 being the smallest and 5 being the largest.

$\frac{5}{8}$	$\frac{3}{8}$	$\frac{2}{8}$	$\frac{6}{8}$	$\frac{7}{8}$

6. What do you notice about non-unit fractions and unit fractions when comparing and ordering?

With unit fractions, you look at the _____.

With non-unit fractions with the same denominators, you look at the _____.

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Fractions of Objects

Can you find fractions of a group of objects? Try these challenges.

1. Fill in the gaps in these sentences.

There are_____ apples. There are _____ pieces of fruit in total.
There are _____ apples out of _____ pieces of fruit.

As a fraction, this is ☐.

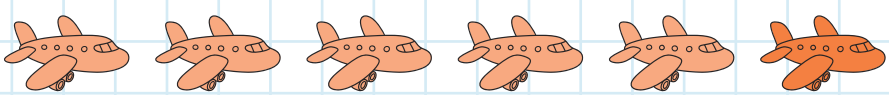
There are _____ oranges. There are _____ pieces of fruit in total.
There are _____ oranges out of _____ pieces of fruit.

As a fraction, this is ☐.

2. What fraction of these groups of objects are shaded?

☐

☐



☐

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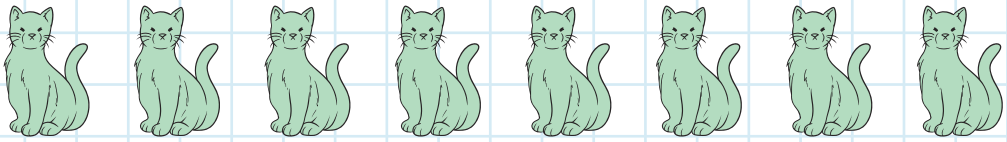
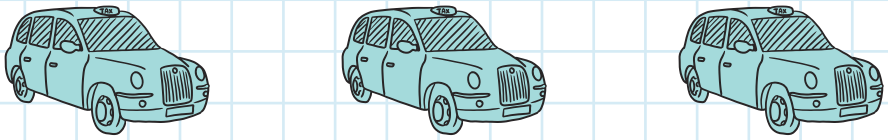
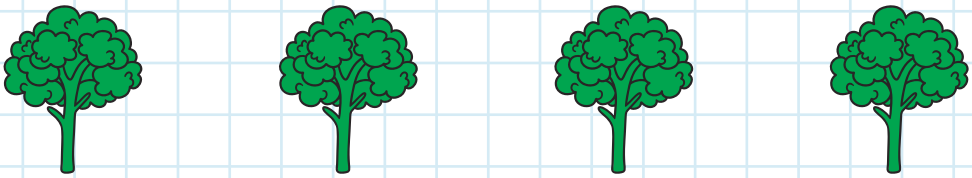
3. Circle the following fractions of these images.



$\frac{6}{8}$



$\frac{2}{3}$



$\frac{3}{4}$

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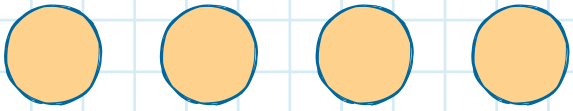
Fractions of Numbers

Can you work out fractions of a number? Use the jottings space to help you.

Example

$\frac{1}{2}$ of 4 =

You could draw 4 counters and find $\frac{1}{2}$ of them.



Or, because this is a unit fraction, you could divide 4 by the denominator, which is 2.

4 ÷ 2 = 2.

$\frac{1}{2}$ of 4 = 2

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

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

$\frac{1}{5}$ of 15 =

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

$\frac{1}{4}$ of 8 =

Counters

Working Out

6 ÷ 2 =

These next ones are a bit trickier!

Example

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

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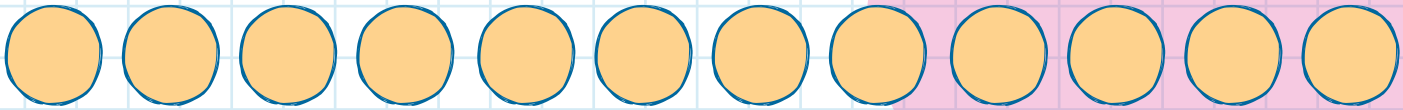
You could draw 12 counters, split them into 14s and then count 3 groups.



Or, because this is a non-unit fraction, you could divide 12 by the denominator (which is 4) and then multiply your answer by the numerator.

12 ÷ 4 = 3

3 x 3 = 9

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

	Counters	Working Out
$\frac{2}{3}$ of 6 =		6 ÷ 3 = _____ x 2 =
$\frac{3}{4}$ of 8 =		
$\frac{3}{5}$ of 10 =		
$\frac{3}{5}$ of 15 =		
$\frac{3}{4}$ of 16 =		

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Equivalent Fractions

Lots of fractions can look different, but are actually equivalent. That means they show the same amount.

Pizza A has been cut in half. You have eaten $\frac{1}{2}$.

Pizza B has been cut into quarters. You have eaten $\frac{2}{4}$.

A

B

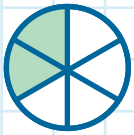
You have eaten the same amount of pizza. That is because 12 and 24 are equivalent fractions.

1. What do you notice about those equivalent fractions? Look at the numerators and the denominators.

2. Fill in the blanks to write the next two equivalent fractions in this set.

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

3. Use the images below to help you to find some equivalent fractions.



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

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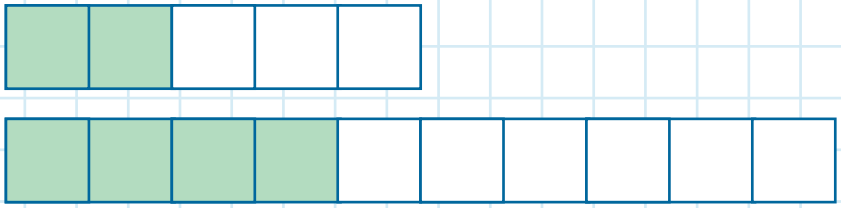
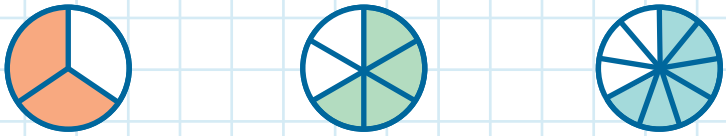


$\frac{\square}{5} = \frac{\square}{10}$



$\square = \square = \square$

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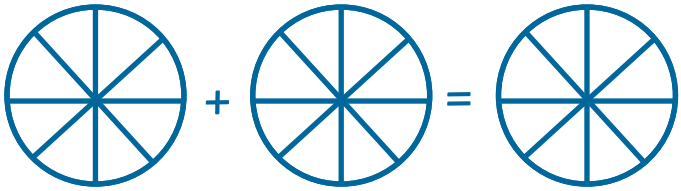
Adding Fractions

When you are adding fractions with the same denominator, you leave the denominator alone and simply add the numerators together.

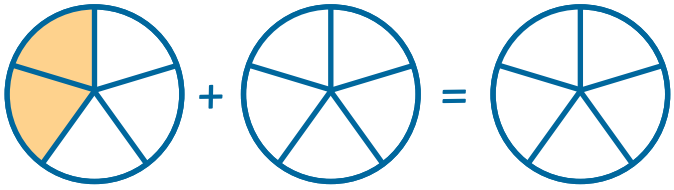
Shade in the pictures to help you to add the fractions together and find the totals.

Example

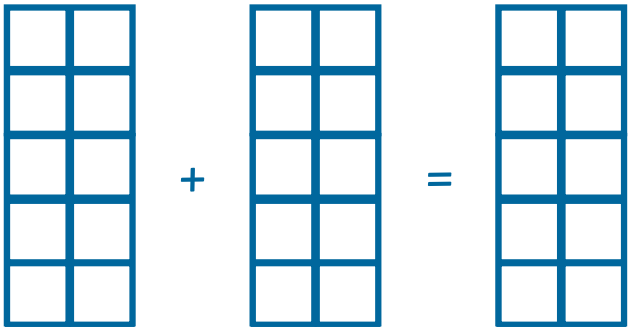
$\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$



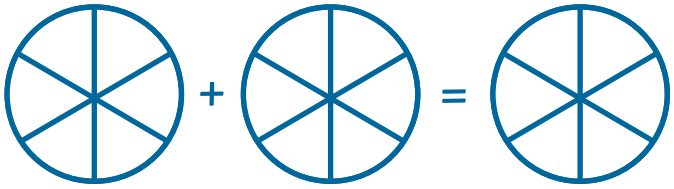
$\frac{2}{\_} + \frac{3}{\_} = \_$



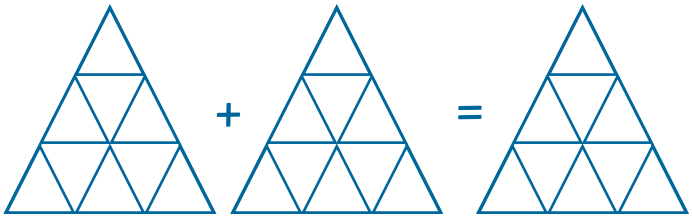
$\frac{\_}{5} + \frac{2}{5} = \_$



$\frac{4}{\_} + \frac{5}{\_} = \_$



$\frac{1}{6} + \frac{4}{6} = \_$



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

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2. Use the jotting space to solve these fraction addition word problems.

Abi and James are sharing a pizza. James has $\frac{2}{6}$ of the pizza and Abi has $\frac{1}{6}$. How much did they eat in total?

Reema sells $\frac{5}{9}$ of her paintings at school and $\frac{3}{9}$ in the market. What fraction of her paintings did she sell overall?

In the tournament, Aziz scored $\frac{3}{7}$ of the team's goals and Lukasz scored $\frac{2}{7}$ of the team's goals. What fraction of goals did Aziz and Lucasz score altogether?

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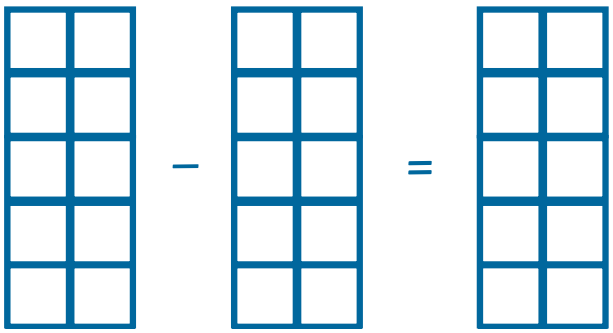
Subtracting Fractions

When you are subtracting fractions with the same denominator, you leave the denominator alone and simply subtract the smaller numerator from the larger numerator.

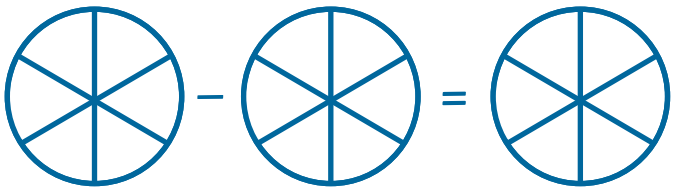
1. Shade in the pictures to help you to solve the subtraction problems and find the totals. If you can, why not see if any of your answers have a simpler equivalent?

Example

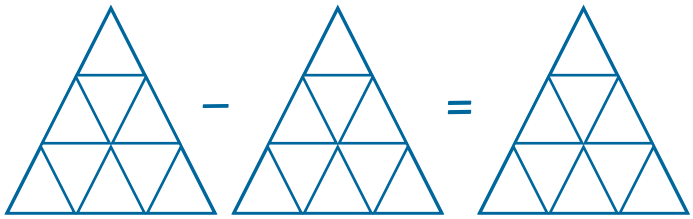
$\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$ or $\frac{1}{2}$



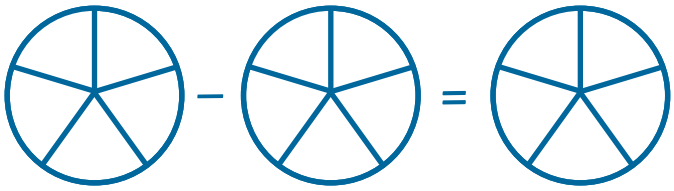
$\frac{8}{} - \frac{3}{} = \frac{}{}$



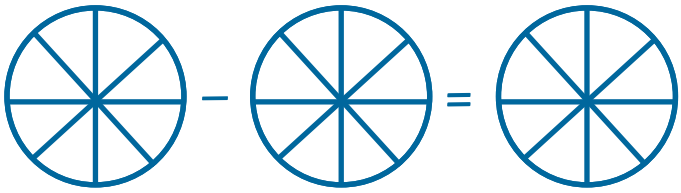
$\frac{5}{} - \frac{3}{} = \frac{}{}$



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



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



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

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2. Use the jotting space to solve these fraction subtraction word problems.

Emma has $\frac{9}{10}$ of a bag of sweets. She eats $\frac{7}{10}$. What fraction of sweets does Emma have left?

Freddie is reading a book. He has $\frac{8}{12}$ chapters left to read. On Friday, he reads $\frac{4}{12}$ chapters. What fraction of the book does he have left to read?

Hamza takes $\frac{5}{6}$ of his birthday money into town and spends $\frac{2}{6}$ of it on his favourite comic. What fraction of his birthday money does he have left??

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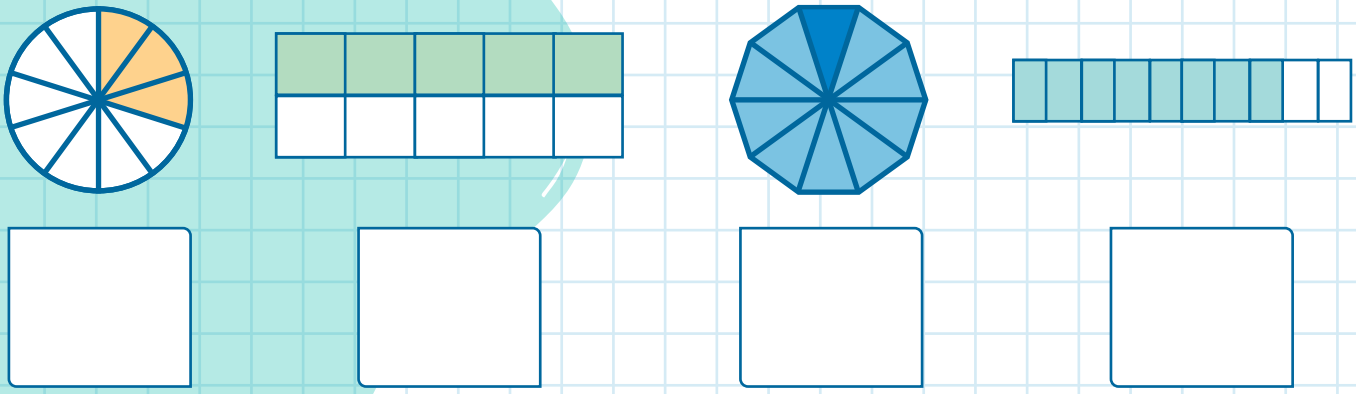
Tenths

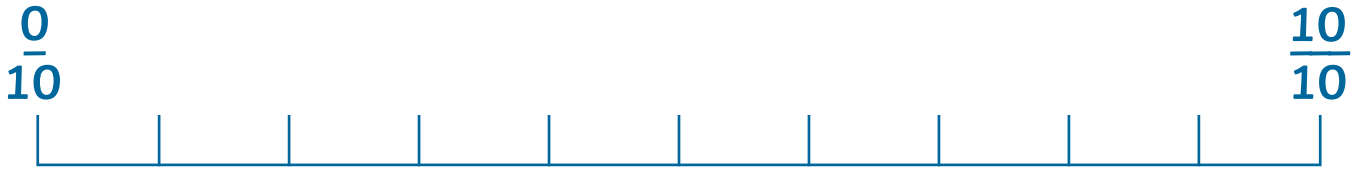
If you divide a number, an object or an amount into ten equal parts, each part is called a tenth or $\frac{1}{10}$. A tenth is ten times smaller than the number 1. That means that if we have ten tenths - or $\frac{10}{10}$ - it is the same as 1 whole.

Thousands	Hundreds	Tens	Ones	Tenths
Th	H	T	O	t
1000	100	10	1	$\frac{1}{10}$

1. Write the fractions shown below the shapes.



2. Complete the number line by adding the correct tenths.



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3. One tenth can be written as a fraction ($\frac{1}{10}$) or a decimal (0.1). Use this knowledge to add decimals to this number line.

4. What do you notice about the two number lines above?

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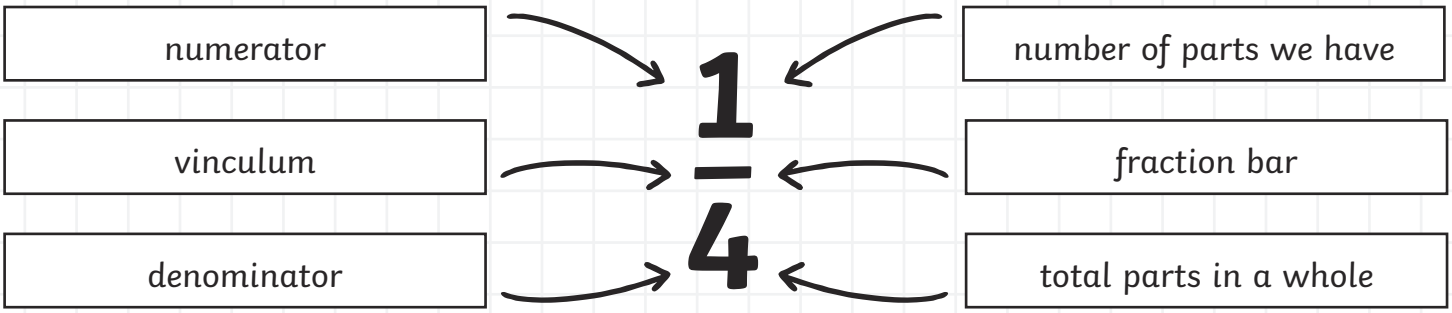
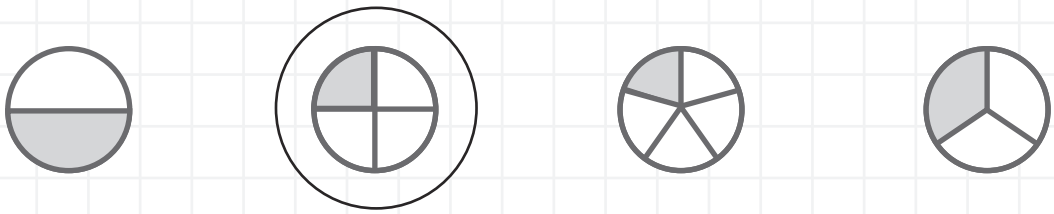
Answers
Features of a Fraction

1.



2.



3.

I know this is $\frac{1}{4}$ as it has 1 part shaded out of 4 total parts.

4.

A fraction is a number that is used to show a **whole** number that has been divided into **equal** parts. A fraction is made up of a top number called the **numerator** and a bottom number called the **denominator**, which are separated by a horizontal line called a **vinculum** or a **fraction bar**.

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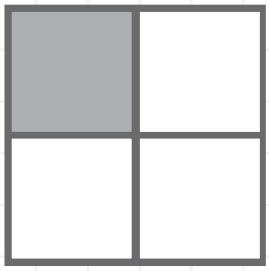
Unit Fractions vs Non Unit Fractions

1. 

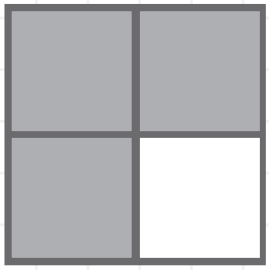
There is **1** part shaded.

There are **4** equal parts in total.

The image shows **1** out of **4** equal parts is shaded.

The fraction is $\frac{1}{4}$.

This is a **unit fraction**.

2. 

There are **3** parts shaded.

There are **4** equal parts in total.

The image shows **3** out of **4** equal parts are shaded.

The fraction is $\frac{3}{4}$.

This is a **non-unit fraction**.

3.

$\frac{1}{5}$ $\frac{2}{3}$ $\frac{1}{8}$ $\frac{1}{2}$ $\frac{4}{5}$ $\frac{2}{6}$ $\frac{1}{3}$ $\frac{3}{4}$

4.

Unit fractions all have 1 as the numerator.

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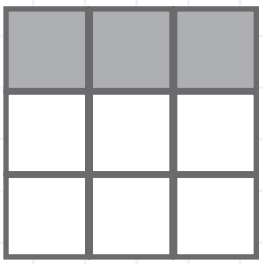
5. Does this image show a unit fraction?



Yes **No**

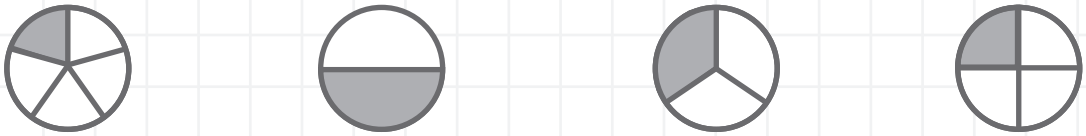
How do you know?

This image shows $\frac{3}{9}$. This is not a unit fraction because the numerator is not 1.

Comparing and Ordering Unit Fractions

1.

Image



Write the fraction shown.

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

Tick the largest.

☐ ✓ ☐ ☐

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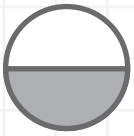
2.

The largest unit fraction has the **smallest** denominator.

3.

4



5

2

1

3

4.

$\frac{1}{10}$	$\frac{1}{7}$	$\frac{1}{3}$	$\frac{1}{9}$	$\frac{1}{5}$
1	**3**	**5**	**2**	**4**

5.

$\frac{1}{2}$	$\frac{1}{6}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{3}$
1	**4**	**3**	**5**	**2**

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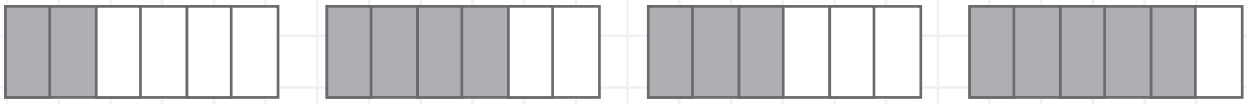
Comparing and Ordering Non-Unit Fractions

1.

Image



Write the fraction shown.

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

Tick the largest.

☐	☐	☐	✓

2.

All these non-unit fractions have the same denominator.

3.

The largest non-unit fraction in this set has the largest numerator.

4.

4	**1**	**5**	**3**	**2**

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5.

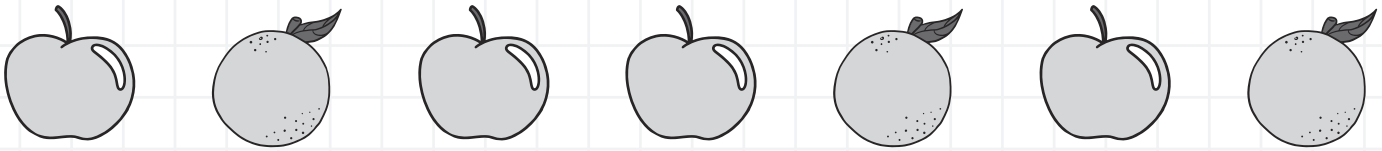
$\frac{5}{8}$	$\frac{3}{8}$	$\frac{2}{8}$	$\frac{6}{8}$	$\frac{7}{8}$
3	**4**	**5**	**2**	**1**

6.

With unit fractions you look at the **denominator**.

With non-unit fractions with the same denominators, you look at the **numerator**.

Fractions of Objects



1.

There are **4** apples. There are **7** pieces of fruit in total. There are **4** apples out of **7** pieces of fruit.

As a fraction, this is $\frac{4}{7}$.

There are **3** oranges. There are **7** pieces of fruit in total. There are **3** oranges out of **7** pieces of fruit.

As a fraction, this is $\frac{3}{7}$.

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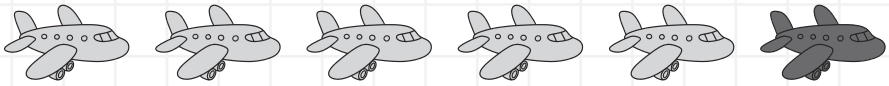
2.

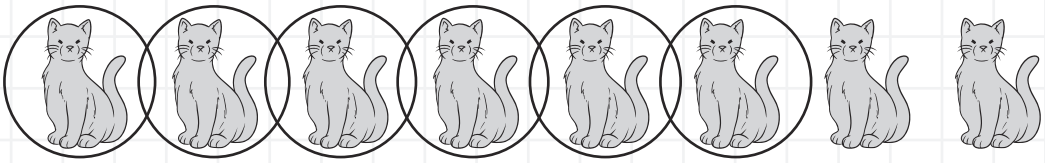
$\frac{2}{5}$

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

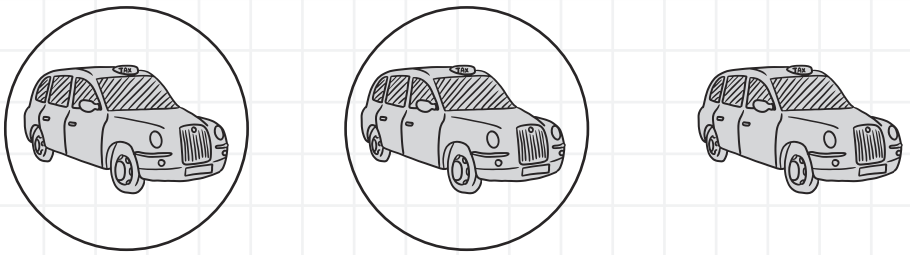


$\frac{1}{6}$

3.



$\frac{6}{8}$



$\frac{2}{3}$

$\frac{3}{4}$

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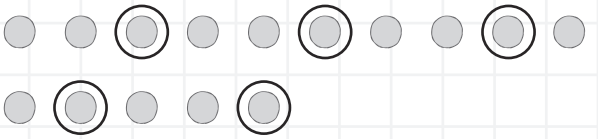
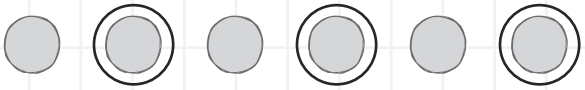
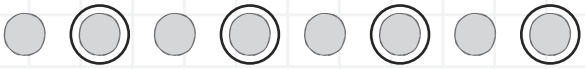
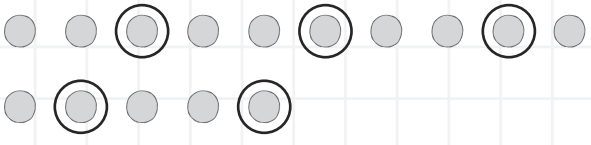
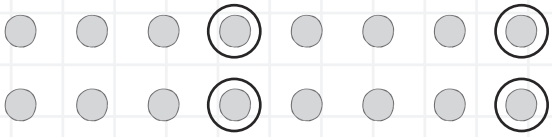
Fractions of Numbers

	Counters	Working Out
$\frac{1}{2}$ of 6 =		6 ÷ 2 = 3
$\frac{1}{2}$ of 10 =		10 ÷ 2 = 5
$\frac{1}{5}$ of 15 =		15 ÷ 5 = 3
$\frac{1}{3}$ of 6 =		6 ÷ 3 = 2
$\frac{1}{4}$ of 8 =		8 ÷ 4 = 2

	Counters	Working Out
$\frac{2}{3}$ of 6 =		6 ÷ 3 = 2 2 x 2 = 4
$\frac{3}{4}$ of 8 =		8 ÷ 4 = 2 2 x 3 = 6
$\frac{3}{5}$ of 10 =		10 ÷ 5 = 2 2 x 3 = 6
$\frac{3}{5}$ of 15 =		15 ÷ 5 = 3 3 x 3 = 9
$\frac{3}{4}$ of 16 =		16 ÷ 4 = 4 4 x 3 = 12

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Equivalent Fractions

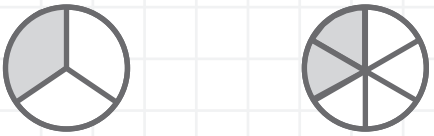
1.

The numerators are increasing by 1 number at a time, and the denominators are increasing by 2 numbers at a time.

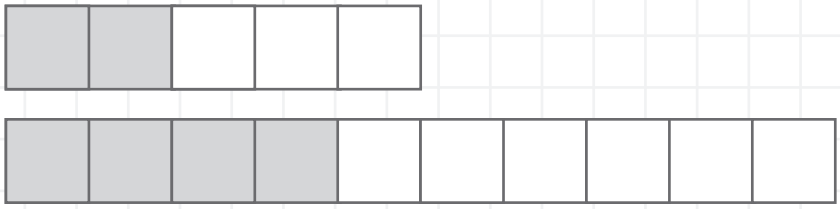
2.

$$\frac{1}{2} = \frac{2}{4} = \frac{\mathbf{3}}{6} = \frac{\mathbf{4}}{\mathbf{8}}$$

3.



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



$$\frac{\mathbf{2}}{5} = \frac{\mathbf{4}}{10}$$

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

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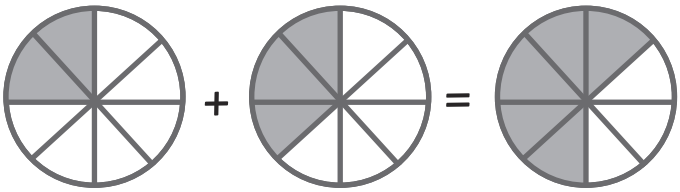
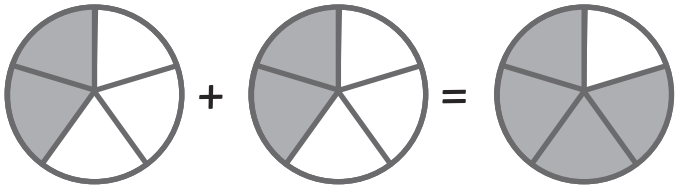
Adding Fractions

Example

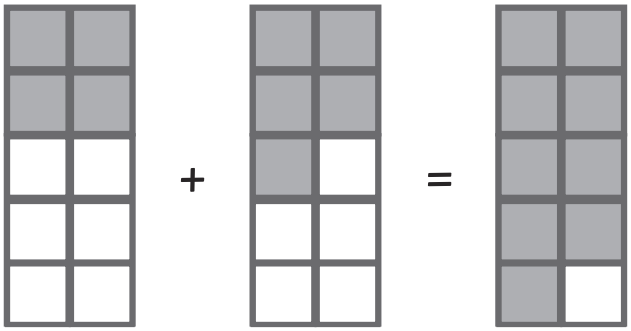
$\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$



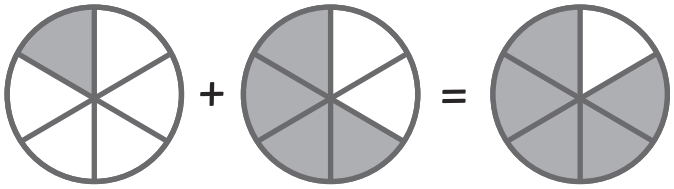
$\frac{2}{8} + \frac{3}{8} = \frac{5}{8}$



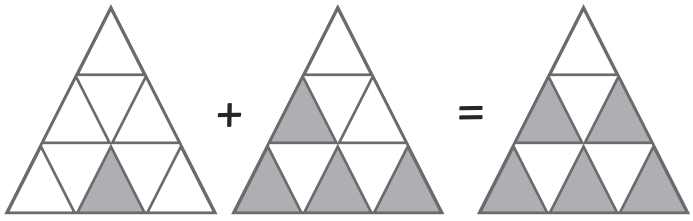
$\frac{2}{5} + \frac{2}{5} = \frac{4}{5}$



$\frac{4}{10} + \frac{5}{10} = \frac{9}{10}$



$\frac{1}{6} + \frac{4}{6} = \frac{5}{6}$



$\frac{1}{9} + \frac{4}{9} = \frac{5}{9}$

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2.

Abi and James are sharing a pizza. James has $\frac{2}{6}$ of the pizza and Abi has $\frac{1}{6}$. How much did they eat in total?

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

Reema sells $\frac{5}{9}$ of her paintings at school and $\frac{3}{9}$ in the market. What fraction of her paintings did she sell overall?

$\frac{5}{9} + \frac{3}{9} = \frac{8}{9}$

In the tournament, Aziz scored $\frac{3}{7}$ of the team's goals and Lukasz scored $\frac{2}{7}$ of the team's goals. What fraction of goals did Aziz and Lucasz score altogether?

$\frac{3}{7} + \frac{2}{7} = \frac{5}{7}$

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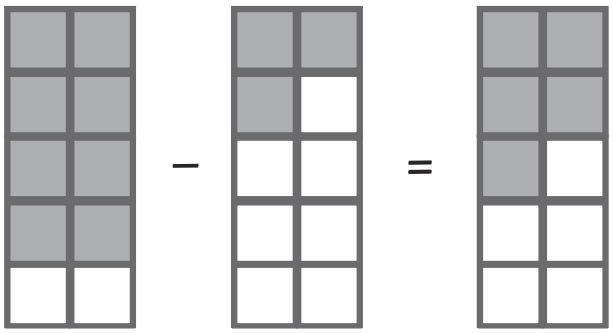
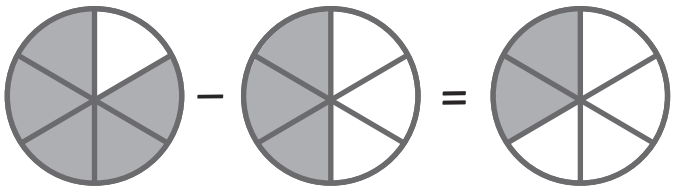
Subtracting Fractions

Example

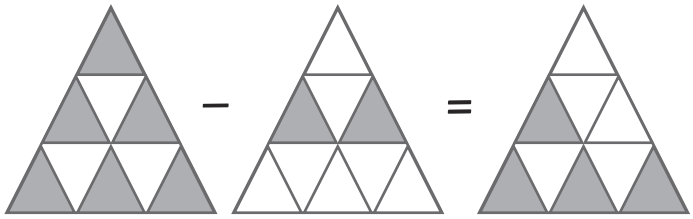
$\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$ or $\frac{1}{2}$



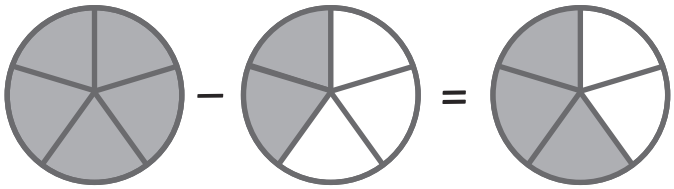
$\frac{8}{10} - \frac{3}{10} = \frac{5}{10}$



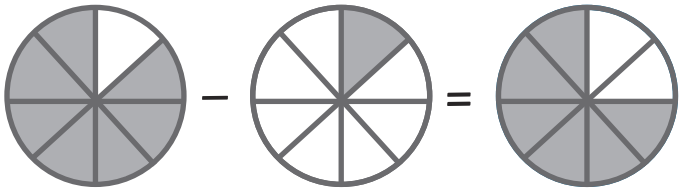
$\frac{5}{6} - \frac{3}{6} = \frac{2}{6}$



$\frac{6}{9} - \frac{2}{9} = \frac{4}{9}$



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



$\frac{7}{8} - \frac{1}{8} = \frac{6}{8}$

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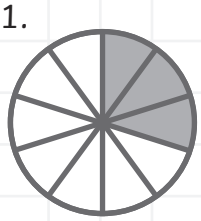
2.

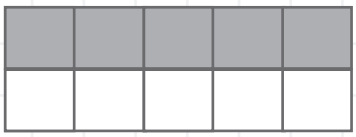
Emma has $\frac{9}{10}$ of a bag of sweets. She eats $\frac{7}{10}$. What fraction of sweets does Emma have left?	$\frac{9}{10} - \frac{7}{10} = \frac{2}{10}$ or $\frac{1}{5}$
Freddie is reading a book. He has $\frac{8}{12}$ chapters left to read. On Friday, he reads $\frac{4}{12}$ chapters. What fraction of the book does he have left to read?	$\frac{8}{12} - \frac{4}{12} = \frac{4}{12}$ or $\frac{1}{4}$
Hamza takes $\frac{5}{6}$ of his birthday money into town and spends $\frac{2}{6}$ of it on his favourite comic. What fraction of his birthday money does he have left?	$\frac{5}{6} - \frac{2}{6} = \frac{3}{6}$ or $\frac{1}{2}$

Tenths

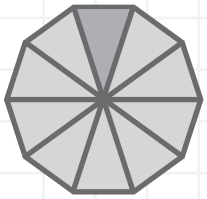
1.



$\frac{3}{10}$



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



$\frac{1}{10}$

$\frac{8}{10}$

2.

$\frac{0}{10}$ $\frac{1}{10}$ $\frac{2}{10}$ $\frac{3}{10}$ $\frac{4}{10}$ $\frac{5}{10}$ $\frac{6}{10}$ $\frac{7}{10}$ $\frac{8}{10}$ $\frac{9}{10}$ $\frac{10}{10}$

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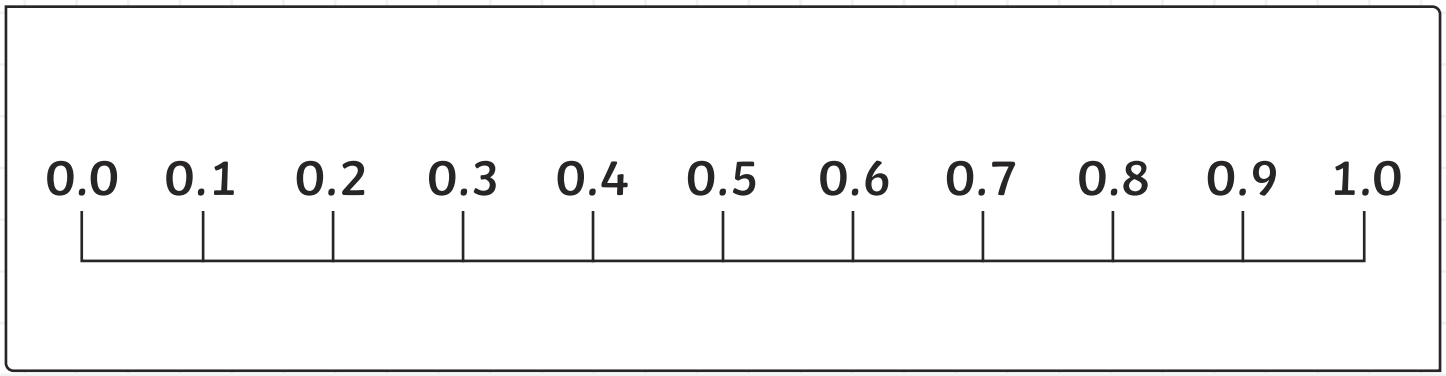
3.



4.

The number after the decimal point is the same as the numerator. The last number on the number line is the same as one whole or 1.

We hope you find the information on our website and resources useful. As far as possible, the contents of this resource are reflective of current professional research. However, please be aware that every child is different and information can quickly become out of date. The information given here is intended for general guidance purposes only and may not apply to your specific situation.