


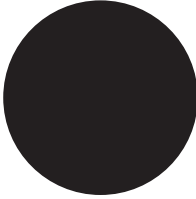

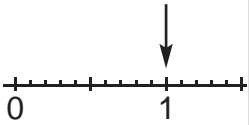



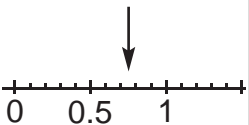

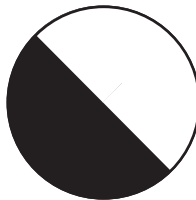

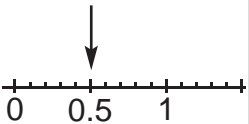
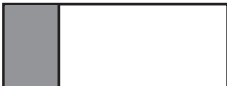
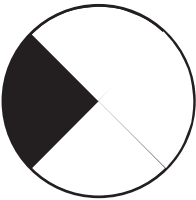

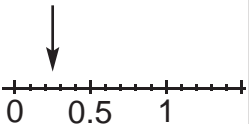
Getting to grips with fractions

Understanding the concept of fractions can be very difficult to get to grips with, let alone manipulate the numbers. As in the previous sections on decimals and percentages, this section starts by introducing the concept of proportion to help reinforce the links between fractions, percentages and decimals before presenting word problems.

A very useful resource for practising fractions is *Target Maths* (Set 4) by Ian Ward, available from QEd Publications. These cards provide an excellent opportunity for reinforcing these skills.

Numbers and proportions

Fifty thousand (50,000) people attend a football match between Liverpool and Arsenal.

NUMBER	PROPORTION	PERCENTAGE	FRACTION	DECIMAL NUMBER
50,000 people	all 	100% 	$\frac{1}{1}$ or 1 	1.0 
37,500 are Arsenal supporters ↓	37,500 Arsenal supporters three quarters 	75% 	$\frac{3}{4}$ 	0.75 
25,000 of the fans use public transport to get to the venue ↓	25,000 fans half 	50% 	$\frac{1}{2}$ 	0.5 
Statistics show that 12,500 of those that attend are under 18 years old ↓	12,500 are under 18 years old a quarter 	25% 	$\frac{1}{4}$ 	0.25 

Getting to grips with fractions



There are 2 equal parts to this rectangle

What **fraction** of the rectangle is shaded?

The answer is **1 out of 2 parts** or, written another way

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

Calculate the following



What **fraction** of the rectangle is shaded?

The answer is ___ **out of** ___ **parts** or, written another way



What **fraction** of the rectangle is shaded?

The answer is ___ **out of** ___ **parts** or, written another way



What **fraction** of the rectangle is shaded?

The answer is ___ **out of** ___ **parts** or, written another way

Getting to grips with fractions

Calculate the following



If you moved the shaded block into line with the rectangle, what **fraction** of the rectangle is shaded?

The answer is ___ **out of** ___ **parts** or, written another way



If you moved the shaded block into line with the rectangle, what **fraction** of the rectangle is shaded?

The answer is ___ **out of** ___ **parts** or, written another way



What **fraction** of the rectangle is shaded?

The answer is ___ **out of** ___ **parts** or, written another way

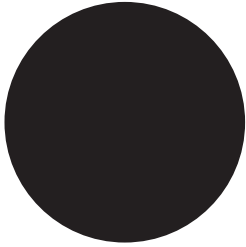


Estimate what **fraction** of the rectangle is shaded? (One way is to divide it yourself into equal parts).

The answer is ___ **out of** ___ **parts** or, written another way

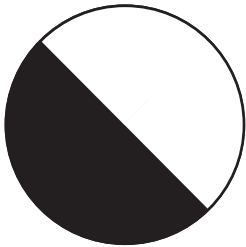
Getting to grips with fractions

Calculate the following



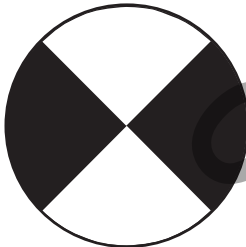
What fraction of the circle is shaded?

What **percentage** is that?



What **fraction** is shaded?

What **percentage** is that?



What **fraction** is shaded?

What **percentage** is that?



What **fraction** is shaded?

What **percentage** is that?

Getting to grips with fractions

Did you know that $\frac{1}{2}$ is the same as $\frac{2}{4}$?

Shade in $\frac{1}{2}$ of the rectangle



Shade in $\frac{2}{4}$ of the rectangle



Use the boxes below to help you

$\frac{2}{6}$ is the same as

$$\frac{\square}{3}$$



$\frac{5}{10}$ is the same as

$$\frac{\square}{2}$$



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

$$\frac{\square}{3}$$



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

$$\frac{\square}{16}$$



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

$$\frac{\square}{20}$$



Getting to grips with fractions

Write in the missing numbers

$$50\% = \frac{\square}{2}$$

Shade this in

$$100\% = \frac{\square}{2}$$

Shade this in

$$75\% = \frac{\square}{4}$$

Shade this in

$$25\% = \frac{\square}{4}$$

Shade this in

Estimating

Estimate $\frac{1}{2}$ of the rectangle and shade it in

What percentage do you think $\frac{1}{2}$ is?

Estimate $\frac{1}{3}$ of the rectangle and shade it in

What percentage do you think $\frac{1}{3}$ is?

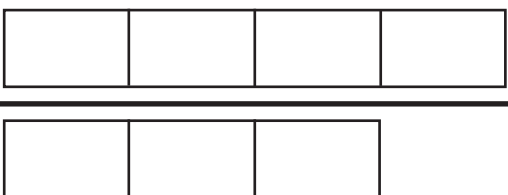
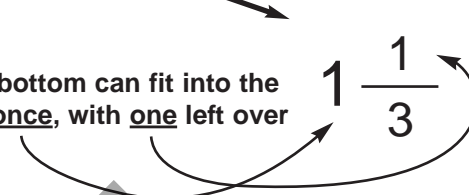
Estimate $\frac{3}{5}$ of the rectangle and shade it in

What percentage do you think $\frac{3}{5}$ is?


Getting to grips with fractions

Mixed fractions

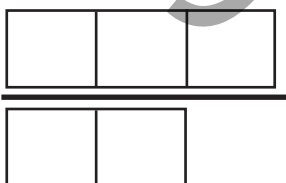
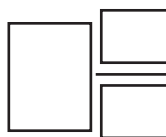
$\frac{4}{3}$ is a **top heavy** fraction because the number on **top** is **bigger** than the **3** number below. This can be converted to a mixed fraction.

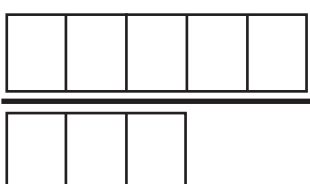
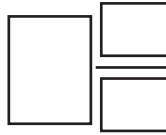
$\frac{4}{3}$

 The bottom can fit into the top once, with one left over
 $1\frac{1}{3}$


Here is another example

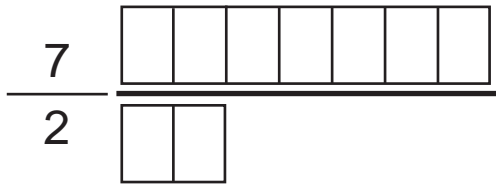
$\frac{5}{2}$

 The bottom can fit into the top twice, with one left over
 $2\frac{1}{2}$

Try converting these fractions

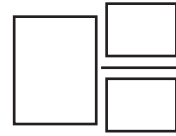
$\frac{3}{2}$

 The bottom can fit into the top _____, with _____ left over
 

$\frac{5}{3}$

 The bottom can fit into the top _____, with _____ left over
 

Getting to grips with fractions



The bottom can fit into the top _____, with _____ left over



Now convert these fractions without the rectangles

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

$$\frac{15}{4} = \boxed{} \frac{\boxed{}}{\boxed{}}$$

$$\frac{20}{3} = \boxed{} \frac{\boxed{}}{\boxed{}}$$

$$\frac{19}{2} = \boxed{} \frac{\boxed{}}{\boxed{}}$$

Solve It – fractions

Maggie carries out a survey of her class of 20 to find out how many wear glasses. She wants to compare her year group to others in the school. She finds that 0.25 of her class wear glasses.

What fraction of her class wear glasses?



I have to find

- how many students wear glasses
- what fraction of the class wear glasses
- Maggie's glasses

This means I have to

- work out 0.25 of 20
- multiply 0.25 by 20
- convert 0.25 into a fraction

My guess for the answer is

about 5

about $\frac{1}{3}$

about $\frac{1}{4}$

Here is my calculation

How can you check it?

Solve It – fractions

In a class of 30 students, $\frac{1}{3}$ stay on at school; $\frac{1}{3}$ go to college, and the rest get jobs.

How many students went on to college?

I have to find

- how many students stayed in education
- what percentage went to college
- how many went to college

This means I have to

- work out $\frac{1}{3}$ of 30

My guess for the answer is

between 5 and 10

between 11 and 15

between 16 and 20

Here is my calculation

How can you check it?

Solve It – fractions

Simon buys a new pair of jeans for £30. On his way home he sees the same style of jeans in another shop having a sale and there is $\frac{1}{3}$ off the original price.

How much would he have paid if he'd bought the jeans in the sale?

I have to find

- how much he would save
- what the discount price is
- which shop is having a sale

This means I have to

My guess for the answer is

between £5 and £10

between £10 and £15

between £15 and £20

Here is my calculation

How can you check it?

Solve It – fractions

At another school nearby with 600 students, they have been encouraged to use bicycles to get to school. The scheme is very successful and on average 400 students cycle to school.

What fraction of the total cycles to school?



I have to find

- what fraction of students cycle to school
- the total number of bicycles
- how many students are lazy

This means I have to

- convert 600 into a fraction
- subtract 400 from 600
- work out what fraction 400 is of 600

My guess for the answer is

about 200

about $\frac{1}{4}$

about $\frac{2}{3}$

Here is my calculation

How can you check it?