

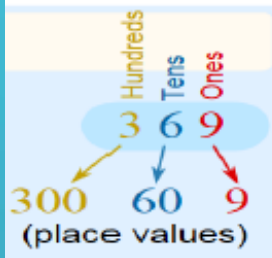
A decorative graphic on the left side of the slide consisting of white and light blue lines and circles, resembling a circuit board or a stylized tree structure.

# NATIONAL CURRICULUM YEAR 6

## MATHS

# PLACE VALUE

- Determine the value of digits to at least 1 000 000 (y5) or 10 000 000 (y6)



Show the value of the digit 6 in these numbers?

6,787,555

9,546,754

Explain how you know.

Can you represent 131, 029? Read and write it?  
What is the value of the 3?

M	HTh	TTh	Th	H	T	O
	●	●● ●	●		●●	●●● ●●● ●●● ●

- Read, write, order and compare numbers to at least 1 000 000 (y5) or 10 000 000 (y6)

Put a number in the missing space below to make the sentence correct.

4\_236460 > 46236460

Is there another option?

Explain how you it is correct.

M HTh TTh Th H T O

1 3 1 2 0 9



M	HTh	TTh	Th	H	T	O
	●	●● ●	●	●●		●●● ●●● ●●● ●

M HTh TTh Th H T O

1 3 1 9 0 2



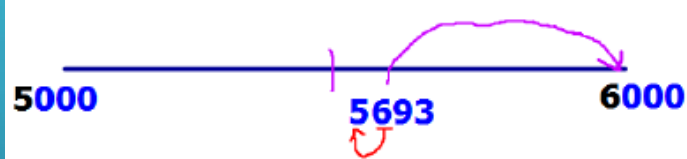
M	HTh	TTh	Th	H	T	O
	●	●● ●	●	●●● ●●● ●●● ●		●●

# PLACE VALUE

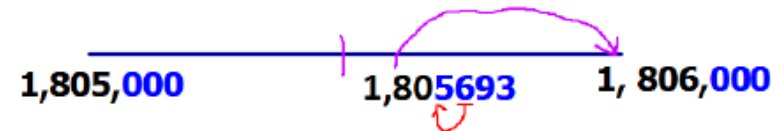
- Read Roman Numerals to 1000 (M)
- Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000, 100 000.

3 = III	8 = VIII
4 = IV	9 = IX
5 = V	10 = X

Round 5693 to the nearest 1000



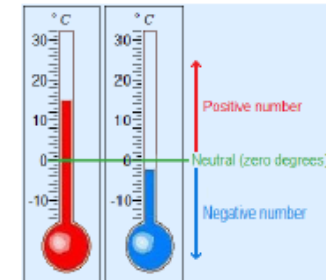
Round 1,805,693 to the nearest 1000



Spot the mistake!

Calvin rounded 215,678 to the nearest ten thousand and wrote 220,678. Can you explain to Calvin what mistake he has made and why he has done it?

- Interpret negative numbers in context



# ADDITION AND SUBTRACTION

- Mentally adding and subtracting increasingly large numbers (y6: including with mixed operations)

Work out this missing numbers:

$$\square - 92 = 145$$

$$740 + \square = 1,039$$

$$\square = 580 - 401$$

$$5,419 + 2,000 = 9,836 - \square$$

Rachel has £10

She spends £6.49 at the shop.

Would you use columnar subtraction to work out the answer?

Explain why.

Is this the most efficient strategy?

$$145 + 92$$

$$145 + 100 = 245$$

$$245 - 8 = 237$$

5 3

$$1039 - 740$$

$$1039 - 700 = 339$$

$$339 - 40 = 299$$

$$580 - 401$$

$$500 - 400 = 100$$

$$80 - 1 = +79$$
  
$$179$$

Using the inverse and understanding of part-whole relationship

Which of the following questions are easy and which ones are hard?

$$213,323 - 10 =$$

$$512,893 + 300 =$$

$$819,354 - 200 =$$

$$319,954 + 100 =$$

Explain why you think the hard questions are hard.



# ADDITION AND SUBTRACTION

- Place value counters used to continue to aid understanding

M	HTh	TTh	Th	H	T	O
	4	8	1	5	6	3
		2	0	4	1	2
-						

I need to exchange 1 hundred counter for 10 tens.

M	HTh	TTh	Th	H	T	O
	3	8	2	7	2	4
		5	1	3	6	9
-						
	3	3	1	3	5	5

I used a coloured pencil to show my exchange pictorially

I'm left with 5 ones.

- Use rounding to check answers to calculations

**382 724 - 51 369**

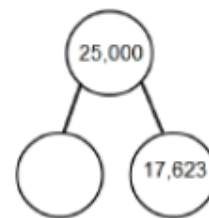
**400 000 - 50 000 = 350 000**

**380 000 - 50 000 = 330 000**

- Vocabulary and missing numbers/digit

$$\begin{array}{r}
 6 \square 0 2 \square \\
 + \quad 5 \square 5 1 \\
 \hline
 \square 9 1 8 0
 \end{array}$$

Complete the part whole model.



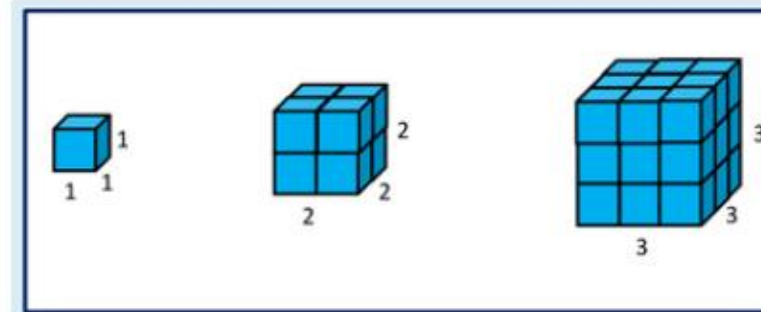
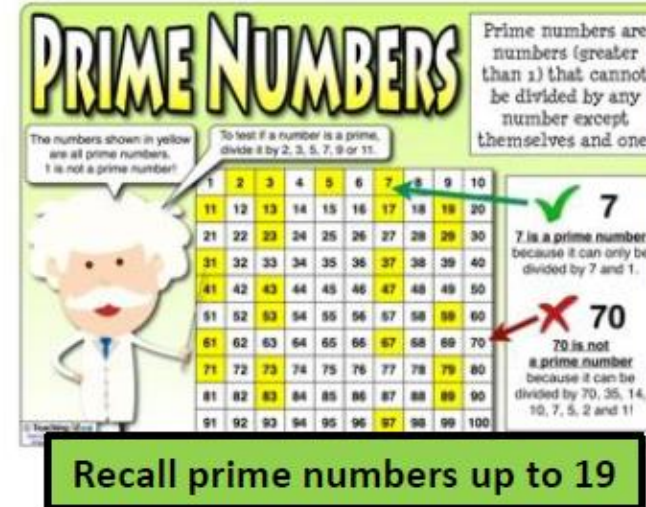
$$\begin{array}{l}
 8 + 3 = 11 \\
 \text{Addend} \quad \text{Addend} \quad \text{Sum or Total} \\
 \\
 8 - 3 = 5 \\
 \text{Minuend} \quad \text{Subtrahend} \quad \text{Difference}
 \end{array}$$

- Factors, multiples and prime numbers

[illegible]

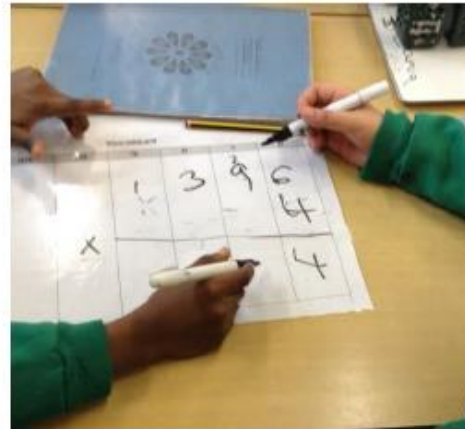
Divisibility Rules		
A number is divisible by . . .	Divisible	Not Divisible
2 if the last digit is even (0, 2, 4, 6, or 8).	3,978	4,975
3 if the sum of the digits is divisible by 3.	315	139
4 if the last two digits form a number divisible by 4.	8,512	7,518
5 if the last digit is 0 or 5.	14,975	10,978
6 if the number is divisible by both 2 and 3	48	20
9 if the sum of the digits is divisible by 9.	711	93
10 if the last digit is 0.	15,990	10,536

- Square and cube numbers



# MULTIPLICATION AND DIVISION

- Using concrete objects and pictorial representations to reinforce formal written methods



Multiplication:

$$6 \times 3 = 18$$

Factor (or Multiplier)      Factor (or Multiplicand)      Product

$$\begin{array}{r} 82 \\ \times 47 \\ \hline 574 \\ 3280 \\ \hline 3854 \end{array}$$

$$\begin{array}{r} 304 \times 51 = 15504 \\ \begin{array}{r} 304 \\ \times 51 \\ \hline 304 \\ + 15200 \\ \hline 15504 \end{array} \end{array}$$

1000	100	10	1
1	2	1	6
X			5
6	0	8	0
Thousands	Hundreds	Tens	Units

$$6 \times 7 = 42$$

How can you use this fact to solve the following calculations?

$$4,200 \div 70 = 60$$

$$0.6 \times 0.7 = 0.42$$

**Multiply and divide drawing upon known facts**

$$\begin{array}{r} 5247 \\ \times 35 \\ \hline 26235 \\ 157410 \\ \hline 183645 \end{array}$$



# MULTIPLICATION AND DIVISION

- Then children move onto formal written methods for division: short and long division (with and without remainders)

Divide:  $3 \overline{)75}$   $3 \text{ goes into } 7 \text{ 2 times with some extra!}$

Multiply:  $3 \overline{)75}$   $2 \times 3 = 6$

Subtract:  $3 \overline{)75}$   $-6$   $1$

Bring Down:  $3 \overline{)75}$   $-6$   $15$

Repeat:  $3 \overline{)75}$   $15 \div 3 = 5$   $5 \times 3 = 15$

$$\begin{array}{r} 135 \\ 7 \overline{)945} \\ \underline{-7} \phantom{0} \\ 24 \phantom{0} \\ \underline{-21} \phantom{0} \\ 035 \\ \underline{-30} \\ 000 \end{array}$$

$$\begin{array}{r} 0403 \\ 6 \overline{)2418} \\ \underline{12} \phantom{00} \\ 118 \phantom{0} \end{array}$$

$$\begin{array}{r} 0403 \\ 6 \overline{)2418} \\ \underline{12} \phantom{00} \\ 118 \phantom{0} \end{array}$$

$$\begin{array}{r} 0636 \text{ r } 7 \\ 9 \overline{)5736} \\ \underline{45} \phantom{00} \\ 1236 \\ \underline{90} \phantom{0} \\ 336 \\ \underline{27} \phantom{0} \\ 66 \\ \underline{54} \\ 12 \end{array}$$

Listing the multiples is recommended

6	
12	
18	
24	
30	
36	
42	



## Order of Operations

<b>B</b>	<b>Brackets</b>	$10 \times (4 + 2) = 10 \times 6 = 60$
<b>O</b>	<b>Order</b>	$5 + 2^2 = 5 + 4 = 9$
<b>D</b>	<b>Division</b>	$10 + 6 \div 2 = 10 + 3 = 13$
<b>M</b>	<b>Multiplication</b>	$10 - 4 \times 2 = 10 - 8 = 2$
<b>A</b>	<b>Addition</b>	$10 \times 4 + 7 = 40 + 7 = 47$
<b>S</b>	<b>Subtraction</b>	$10 \div 2 - 3 = 5 - 3 = 2$

# SOLVE MULTI-STEP NUMBER PROBLEMS

Mr Todd buys **7 drinks** at **48p** each and **8 drinks** at **52p** each.

What is the **total** cost of the 15 drinks?

You **must** show your working.



Show your **working**.  
You may get a mark



£

# INTRODUCE USE OF UNKNOWN NUMBERS TO SOLVE A PROBLEM

Q5.  $p$  and  $q$  each stand for whole numbers.

$$p + q = 1000$$

$p$  is 150 greater than  $q$ .

Calculate the numbers  $p$  and  $q$ .



Show  
your **working**.  
You may get  
a mark

$p =$

$q =$



# COMPARE AND SIMPLIFY FRACTIONS

1.  $\frac{10}{16} = \frac{5}{8}$  (Simplified by dividing both numerator and denominator by 2)

2.  $\frac{20}{50} = \frac{4}{10} = \frac{2}{5}$  (Simplified by dividing both numerator and denominator by 5, then by 2)

Make each fraction equivalent to  $\frac{3}{5}$ .

$$\frac{\boxed{\phantom{000}}}{10}$$

$$\frac{\boxed{\phantom{000}}}{15}$$

$$\frac{12}{\boxed{\phantom{000}}}$$

## Comparing Fractions

All fractions have value. You can compare two or more fractions using the following symbols.

**Greater Than**

**>**

**Less Than**

**<**

**Equal To**

**=**

Remember these rules when comparing fractions!

**Same Numerator**

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

The smaller denominator is the greater fraction.

**Same Denominator**

$$\frac{3}{5} < \frac{4}{5}$$

The larger numerator is the greater fraction.

## Different Numerators and Denominators

If you are comparing two fractions with different numerators and denominators, find equivalent fractions with the same denominator.

$$\frac{12}{20} = \frac{4}{5} \times \frac{3}{5} > \frac{2}{4} \times \frac{5}{5} = \frac{10}{20}$$

$\frac{3}{5}$  is greater than  $\frac{2}{4}$  because when you multiply to get the common denominator of 20, 12 is greater than 10.

You can also use the butterfly method. Cross multiply and then compare the products. The larger product is the side of the greater fraction.

$$3 \times 4 = 12 \quad \frac{3}{5} > \frac{2}{4} \quad 5 \times 2 = 10$$

12 is greater than 10 so  $\frac{3}{5}$  is greater than  $\frac{2}{4}$ .

# ADDING FRACTIONS

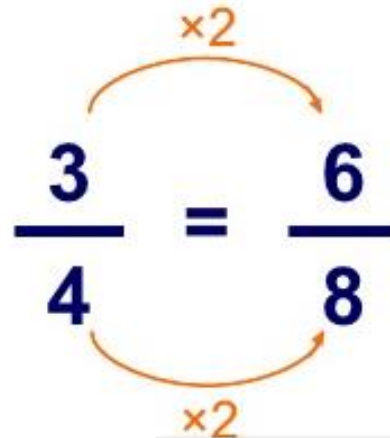
## Adding and subtracting simple fractions

We can use **equivalent** fractions to add fractions that do not have the same **denominator**.

For example:

$$\frac{3}{4} + \frac{1}{8}$$

We need to change  $\frac{3}{4}$  into an equivalent fraction with a denominator of 8.

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


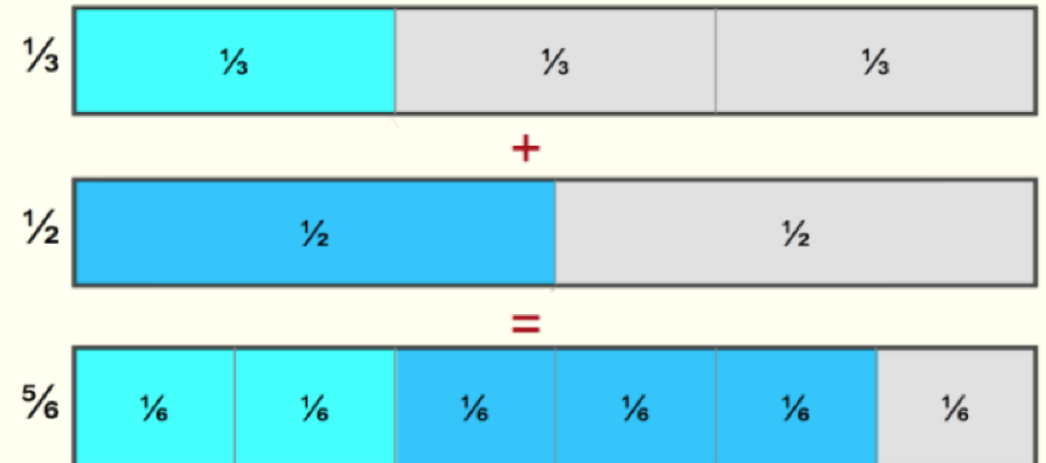
Now we have:

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

**Denominator** – The bottom number of a fraction.

**Numerator** – The top number of a fraction.

**Equivalent** – The same as.



# MULTIPLY FRACTIONS

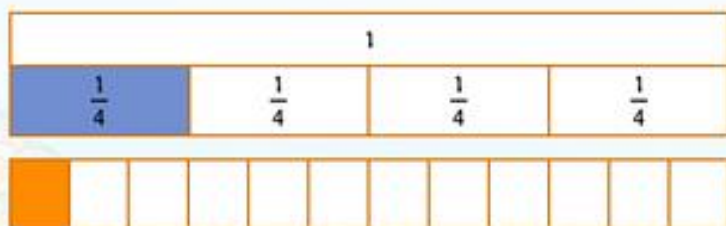
## MULTIPLYING FRACTIONS

Remember! 1. Multiply 2. Multiply 3. Simplify	Fraction multiplied by a fraction	Whole number multiplied by a fraction	Fraction multiplied by a mixed number
<b>Step 1:</b> Write whole number as fraction; write mixed number as improper fraction.	$\frac{2}{3} \times \frac{3}{4}$	$9 \times \frac{2}{5}$ ↓ $\frac{9}{1} \times \frac{2}{5}$	$\frac{2}{3} \times 2\frac{1}{3}$ ↓ $\frac{2}{3} \times \frac{7}{3}$
<b>Step 2:</b> Multiply the numerators	$\frac{2}{3} \times \frac{3}{4} = \frac{6}{12}$	$\frac{9}{1} \times \frac{2}{5} = \frac{18}{5}$	$\frac{2}{3} \times \frac{7}{3} = \frac{14}{9}$
<b>Step 3:</b> Multiply the denominators	$\frac{2}{3} \times \frac{3}{4} = \frac{6}{12}$	$\frac{9}{1} \times \frac{2}{5} = \frac{18}{5}$	$\frac{2}{3} \times \frac{7}{3} = \frac{14}{9}$
<b>Step 4:</b> Write answer in simplest terms	$\frac{6}{12} = \frac{1}{2}$	$\frac{18}{5} = 3\frac{3}{5}$	$\frac{14}{9} = 1\frac{5}{9}$



# DIVIDE FRACTIONS

$$\frac{1}{4} \div 3$$



Dividing fractions,  
as easy as pie,  
flip the fraction,  
Then multiply,  
And don't forget  
to simplify,  
Before it's time to  
say goodbye.

# DIVIDING FRACTIONS

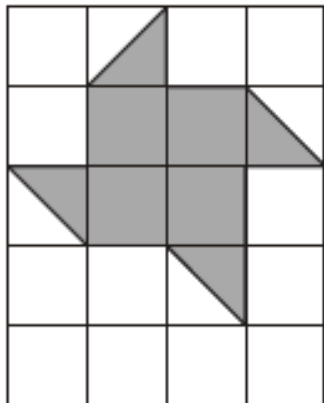
Remember!

Keep	Change	Flip	Fraction divided by a fraction	Whole number divided by a fraction	Fraction divided by a mixed number
First fraction stays the same	Operation changes from $\div$ to $\times$	Flip 2nd fraction for reciprocal			
<b>Step 1:</b> Write whole number as fraction; write mixed number as improper fraction.			$\frac{2}{3} \div \frac{1}{3}$	$9 \div \frac{1}{3}$	$\frac{2}{3} \div 2\frac{1}{3}$
<b>Step 2:</b> Find the reciprocal of the divisor (the number you are dividing by).			$\frac{2}{3} \div \frac{3}{1}$	$\frac{9}{1} \div \frac{1}{3}$	$\frac{2}{3} \div \frac{7}{3}$
<b>Step 3:</b> The reciprocal allows you to change the operation from division to multiplication.			$\frac{2}{3} \times \frac{3}{1}$	$\frac{9}{1} \times \frac{3}{1}$	$\frac{2}{3} \times \frac{3}{7}$
<b>Step 4:</b> Multiply the fractions.			$\frac{2}{3} \times \frac{3}{1} = \frac{6}{3}$	$\frac{9}{1} \times \frac{3}{1} = \frac{27}{1}$	$\frac{2}{3} \times \frac{3}{7} = \frac{6}{21}$
<b>Step 5:</b> Write the answer in simplest terms.			$\frac{6}{3} = 2$	$\frac{27}{1} = 27$	$\frac{6}{21} = \frac{2}{7}$

# SOLVE PROBLEMS USING FRACTIONS, DECIMALS AND PERCENTAGES

Decimal	Percentage	Fraction
0.23	23%	$\frac{23}{100}$ cannot simplify!
	$\xrightarrow{\text{x 100}}$	$\xrightarrow{\text{out of 100}}$
0.05	5%	$\frac{5}{100} \xrightarrow{\text{can simplify!}} \frac{1}{20}$
	$\xrightarrow{\text{x 100}}$	$\xrightarrow{\text{out of 100}}$

Here is a grid of 20 squares.



What percentage of the grid is shaded?

## Percentages without



100%	Is the number!	
10%	$\div 10$	
5%	$\div 10$ , then $\frac{1}{2}$ it	
1%	$\div 10$ , $\div 10$ again	or $\div 100$
$\frac{1}{2}\%$	$\div 10$ , $\div 10$ , $\frac{1}{2}$ it	or $\div 100$ , $\frac{1}{2}$ it
20%	$\div 10$ , $\times 2$	or $\div 5$ (if easy)
25%	Find 20%, find 5%, add the two together	or $\div 4$ , or $\frac{1}{2}$ , it $\frac{1}{2}$

# USE WRITTEN DIVISION UP TO 2 DECIMAL POINTS

$$591 \div 12$$

Work out the answer to two decimal places.

1

answer section

$$\begin{array}{r} 4 \\ 12 \overline{) 591} \\ \underline{48} \phantom{0} \\ 111 \phantom{0} \end{array}$$

First, work out how many 12s there are in 59. The answer to this question is 4, which is written above the 9. We then write the product of 4 and 12 (48) under 59 and subtract giving 11. The 1 is then brought down and written next to 11 to make 111.

2

answer section

$$\begin{array}{r} 49 \\ 12 \overline{) 591} \\ \underline{48} \phantom{0} \\ 111 \phantom{0} \\ \underline{108} \phantom{0} \\ 3 \phantom{0} \end{array}$$

Next, work out how many 12s there are in 111. The answer to this question is 9, which is written above the 1. Then, write the product of 9 and 12 (108) under 111 and subtract it, giving 3.

3

answer section

$$\begin{array}{r} 49. \\ 12 \overline{) 591.00} \\ \underline{48} \phantom{00} \\ 111 \phantom{00} \\ \underline{108} \phantom{00} \\ 3.00 \phantom{00} \end{array}$$

Extend 591 into decimals to continue the process of long division. The 0 in the tenths place is then brought down and written next to 3 to make 30.

4

answer section

$$\begin{array}{r} 49.2 \\ 12 \overline{) 591.00} \\ \underline{48} \phantom{00} \\ 111 \phantom{00} \\ \underline{108} \phantom{00} \\ 3.00 \phantom{00} \\ \underline{24} \phantom{00} \\ 60 \phantom{00} \end{array}$$

Next, work out how many 12s there are in 30. The answer to this question is 2, which is written above the 0 in the tenths place. Then, write the product of 2 and 12 (24) under 30 and subtract it, giving 6. The 0 is then brought down and written next to 6 to make 60.

5

answer section

$$\begin{array}{r} 49.25 \\ 12 \overline{) 591.00} \\ \underline{48} \phantom{00} \\ 111 \phantom{00} \\ \underline{108} \phantom{00} \\ 3.00 \phantom{00} \\ \underline{24} \phantom{00} \\ .60 \phantom{00} \\ \underline{.60} \phantom{00} \\ 0 \phantom{00} \end{array}$$

Next, find out how many 12s there are in 60. The answer to this question is 5, which is written above the 0 in the hundredths place. Then, write the product of 5 and 12 (60) under 60 and subtract it, giving zero.

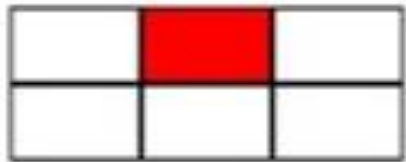
$$591 \div 12 = 49.25$$



# INTRODUCE RATIO AND PROPORTION

The **proportion** of this shape that is red is  
1 part out of 6 parts altogether.

This can be shown as  $\frac{1}{6}$



As a **ratio** problem compare the number of  
red parts with the number of white ones.

The ratio of red to white is  $1:5$

Two letters have a total weight of 120 grams

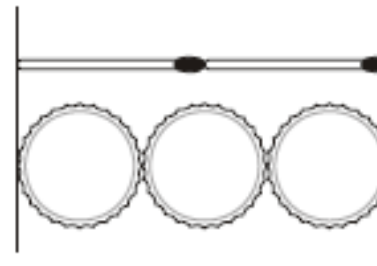


One letter weighs twice as much as the other.  
Write the weight of the heavier letter.

Y4 optional test 2003 Paper B level 4

$$\begin{aligned}\text{Ratio} &= 1:2 \\ 120\text{g} \div 3 &= 40\text{g} \\ 40 \times 1 &= 40\text{g} \quad 40 \times 2 = 80\text{g} \\ 40 + 80 &= 120\text{g}\end{aligned}$$

Two matchsticks have the same length as three  
bottle tops.



How many bottle tops will have the same length as  
50 matchsticks?

KS2 2007 Paper A level 5

$$\begin{aligned}\text{Ratio} &= 2:3 \\ M : B \\ 2:3 \\ 50:75 \\ (2 \times 25 = 50 \dots 3 \times 25 = 75)\end{aligned}$$

# CONFIDENTLY USE A RANGE OF MEASURES AND CONVERSIONS



## Weight, Length and Capacity Place Mat

### Length

1 centimetre (cm) = 10 millimetres (mm)

1 metre (m) = 100 centimetres (cm)

1 kilometre (km) = 1000 metres (m)



### Weight

1 gram (g) = 1000 milligrams (mg)

0.1 kilograms (kg) = 100 grams (g)

1 kilogram (kg) = 1000 grams (g)

1 tonne = 1000 kilograms (kg)



### Capacity

1 litre (l) = 1000 millilitres (ml)

1 litre (l) = 100 centilitres (cl)

1 centilitre (cl) = 10 millilitres (ml)

0.1 litres (l) = 100 millilitres (ml)



### Imperial Units

1 pint = 568ml

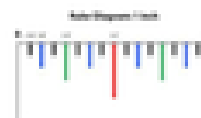
1 inch = 2.5 cm or 25 mm

1 foot = 12 inches or 30 cm

1 mile = 1.6 km

1 ounce = 25g

1 pound (lb) = 500g



A bottle holds 1 litre of lemonade.  
Rachel fills 5 glasses with lemonade.  
She puts 150 millilitres in each glass.  
How much lemonade is left in the bottle?

**KS2 2003 Paper A level 4**

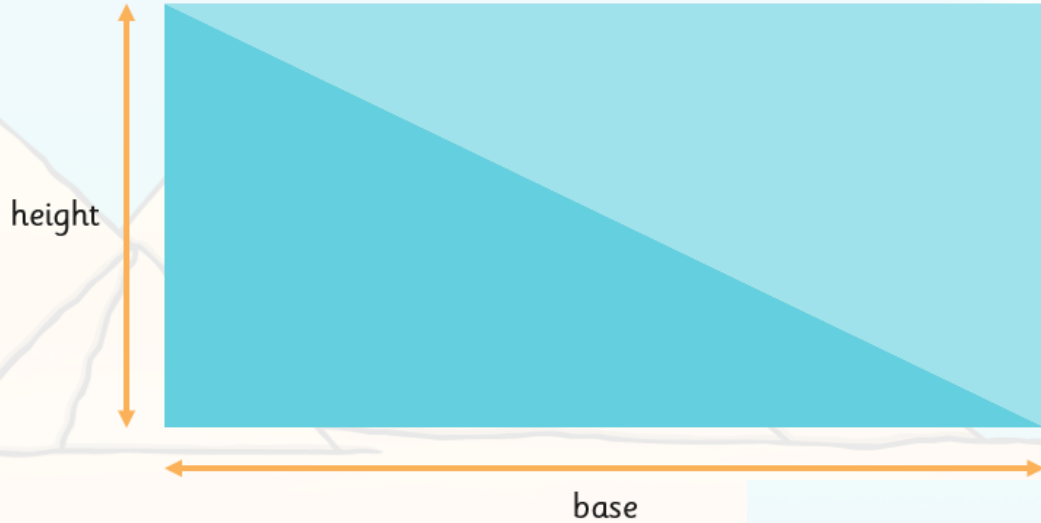
This table shows the weight of some fruits and vegetables. Complete the table.

	grams	kilograms
potatoes	3500	3.5
apples		1.2
grapes	250	

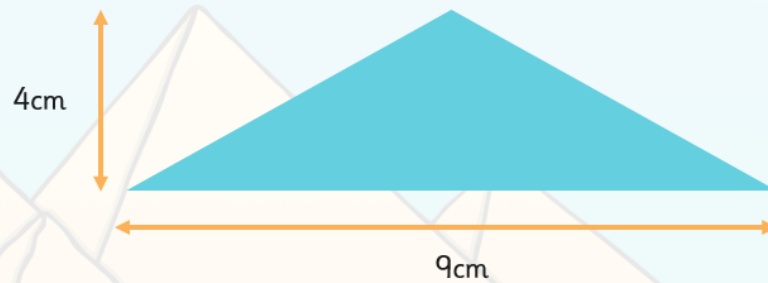
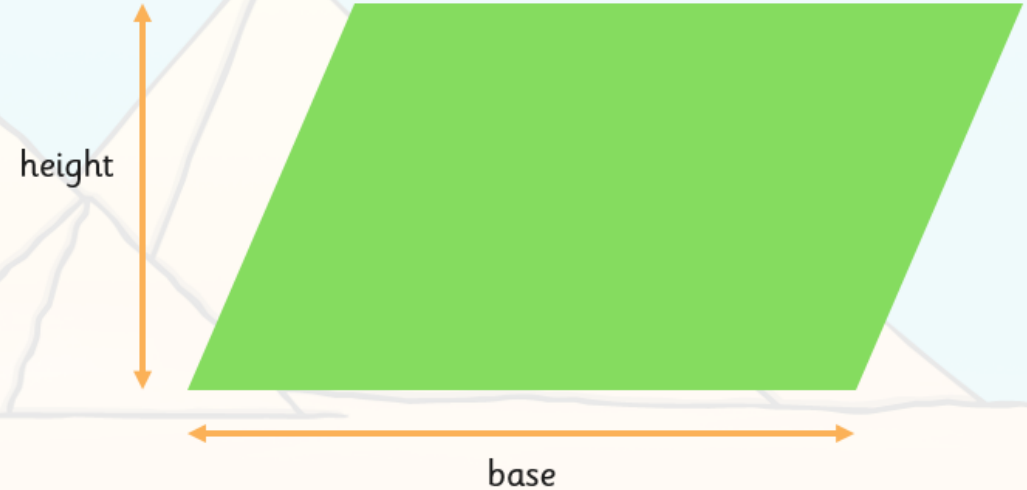
**KS2 2002 Paper A level 4**

# CALCULATE AREA OF TRIANGLES AND PARALLELOGRAMS

Area of a triangle = half the area of the rectangle  
= half of the base x height



Area of a parallelogram = the area of the rectangle  
= base x height



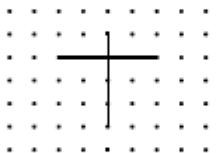
$$\text{Area} = \frac{1}{2} \times 9\text{cm} \times 4\text{cm} = 18\text{cm}^2$$

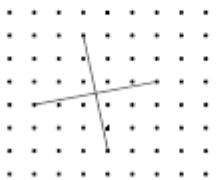


# CLASSIFY SHAPES BY PROPERTIES

These diagrams show the diagonals of three quadrilaterals. Write the names of the quadrilaterals in the boxes.

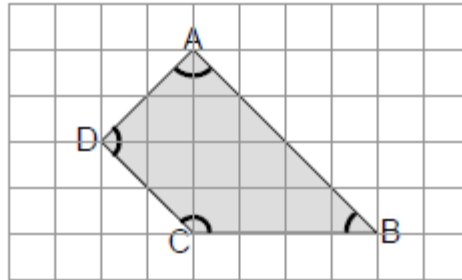







KS2 2003 Paper A level 4

Here is a shape on a square grid.



For each sentence, put a tick (✓) if it is true. Put a cross (✗) if it is not true.

Angle C is an obtuse angle.

Angle D is an acute angle.

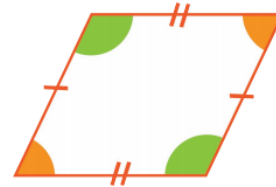
Line AD is parallel to line BC.

Line AB is perpendicular to line AD.

KS2 2000 Paper B level 5

## Types of Quadrilateral

### parallelogram



2 pairs of equal sides  
Diagonally opposite angles are equal

### trapezium



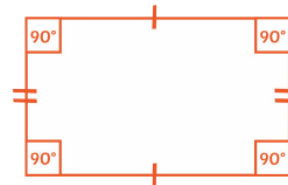
1 pair of sides are parallel

### rhombus



All sides are equal  
Diagonally opposite angles are equal

### rectangle



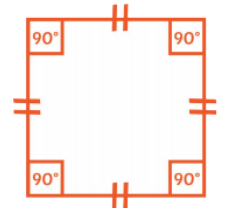
2 pairs of equal parallel sides  
4 right angles (90°)

### kite



2 pairs of sides of equal length  
1 pair of opposite angles is equal.

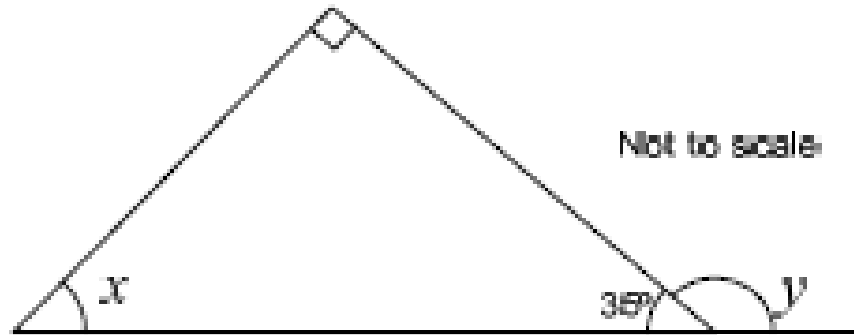
### square



4 equal parallel sides  
4 right angles (90°)

# KNOW AND USE ANGLE RULES

Look at this diagram.



Calculate the size of angle  $x$  and angle  $y$ .  
Do not use a protractor (angle measurer).

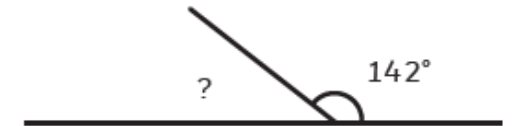
**KS2 2002 Paper A level 5**

**Angles on a straight line always add up to  $180^\circ$**



$$180^\circ - 117^\circ = 63^\circ$$

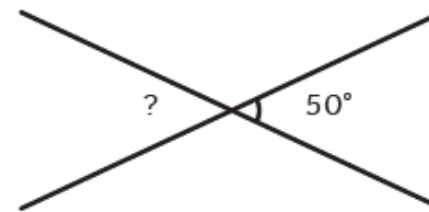
The missing angle is  $63^\circ$ .



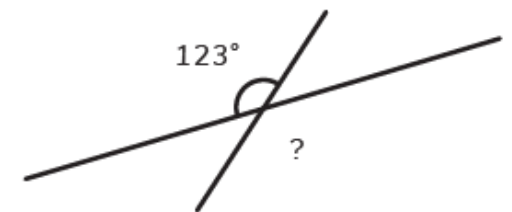
$$180^\circ - 142^\circ = 38^\circ$$

The missing angle is  $38^\circ$ .

**Missing Vertically Opposite Angles**  
**Opposite angles are equal.**

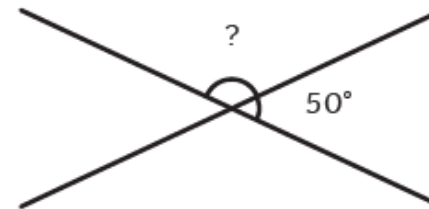


The missing angle is  $50^\circ$ .



The missing angle is  $123^\circ$ .

**Angles around a point total  $360^\circ$**

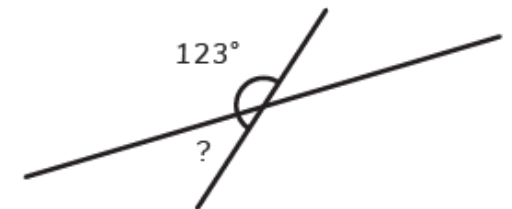


The two known opposite angles total  $100^\circ$ .

$$360^\circ - 100^\circ = 260^\circ$$

$$260^\circ \div 2 = 130^\circ$$

The missing angle is  $130^\circ$ .



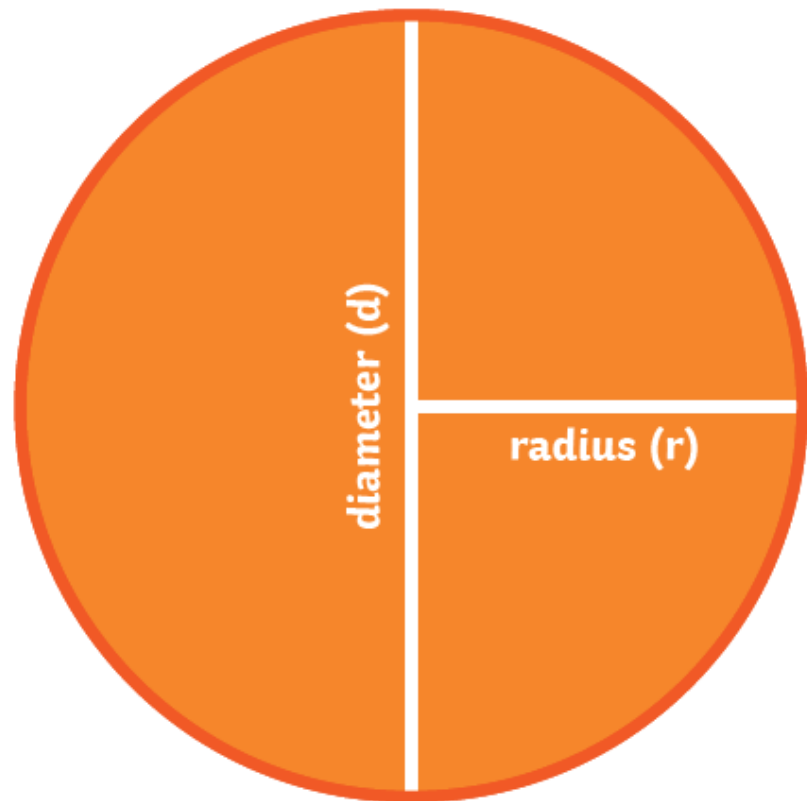
The two known opposite angles total  $246^\circ$ .

$$360^\circ - 246^\circ = 114^\circ$$

$$114^\circ \div 2 = 57^\circ$$

The missing angle is  $57^\circ$ .

# CIRCLES



circumference (c)



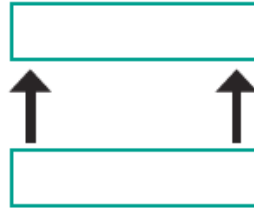
- The perimeter of a circle is called the circumference. (bicycle tyre)
- The width of a circle is called the diameter.
- Half of the width is the radius (spokes)

# TRANSLATE AND REFLECT SHAPES USING ALL 4 QUADRANTS

## Translate / Translation

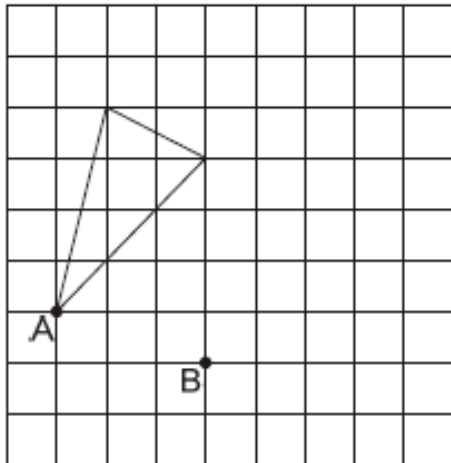
A shape is translated when it is moved without rotating or resizing.

Every point of the shape moves the same distance in the same direction.



Here is a triangle on a square grid. The triangle is translated so that point A moves to point B.

Draw the triangle in its new position. Use a ruler.



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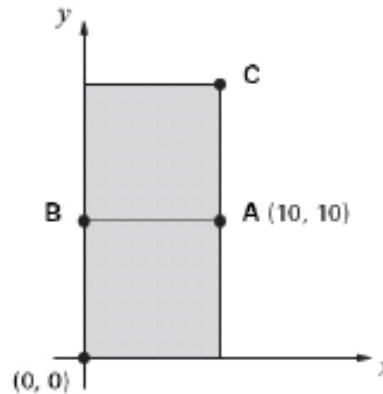
## Reflect / Reflection

A shape is reflected about a line when it is flipped over a mirror line.



Every point of the shape is the same distance from the mirror line as the same point on the reflected shape.

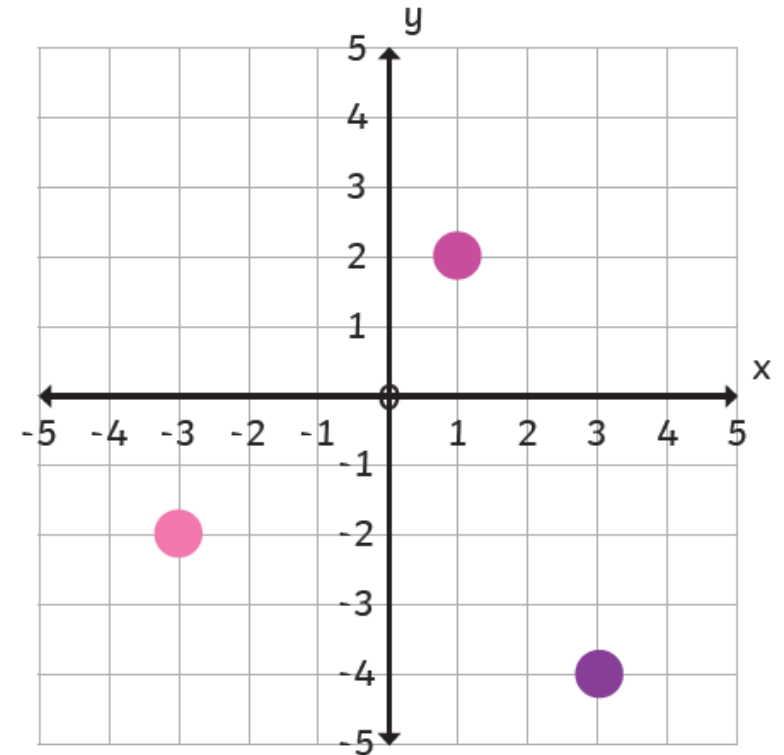
The diagram shows two identical squares.



A is the point (10,10).

What are the coordinates of B and C?

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● = (3,-4)    ● = (1,2)    ● = (-3,-2)

Coordinates can use positive and negative numbers. Whether positive or negative, always write the x-axis coordinate followed by the y coordinate.

Look at the blue point. It is 3 squares along and 4 down. We write this coordinate as (3,-4).



# USE PIE CHARTS

Class 6 did a survey of the number of trees in a country park. This pie chart shows their results.



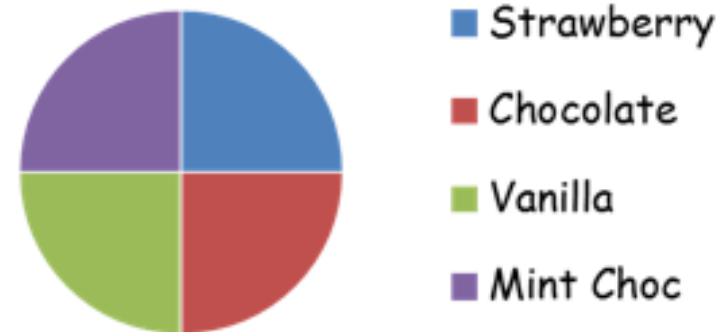
Estimate the fraction of trees in the survey that are oak trees.

The children counted 60 ash trees.

Use the pie chart to estimate the number of beech trees they counted.

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## Favourite Ice Cream



- 1) If 4 children were asked this question how many children does one segment represent?
- 2) If 8 Children were asked this question what does each segment represent?
- 3) If the total survey was of 20 children how many children's favourite ice cream was strawberry?
- 4) If the total survey was of 200 children how many children's favourite ice cream was strawberry?
- 5) If the total survey was of 200 children, how many children all together liked Vanilla and strawberry?
- 6) Can you explain why this pie chart cannot show 10 children's favourite ice cream? (think what  $\frac{1}{4}$  would be)

# CALCULATE MEAN AVERAGES

## MEAN

Commonly used in sport to find out a score in sports like Football, Basketball and Cricket

Is also known as the "average"

1. Add up all the values to get the total
2. Then divide the total by the number of values you added together

$$3 + 4 + 8 + 7 + 5 + 3 = 30$$

$$30 \div 6 = 5$$

The average for these values is 5



## MEDIAN

Used when comparing house prices.

The "middle" number in a set of values

1. First put all the values in order
2. Find the middle number in the set of data
3. If there are two values in the middle, find the mean of these two.

1, 2, 4, 5, 6, 8, 9

The median is 5.



## Mode

Eg. What is the mode of goals kicked by a footballer after each round?

The number which occurs the most

1. Count how many of each value appears
2. The mode is the value which appears the most
3. There can be more than 1 mode

1, 2, 2, 5, 6, 6, 9

2 and 6 are the mode for these values.



## range

Measures difference between all the values.  
Used in weather.

The range is the difference between the highest and lowest value

1. Find the highest and lowest values
2. Subtract the lowest value from the highest value.

1, 2, 2, 5, 6, 6, 9

$$9 - 1 = 8$$

The range is 8

