

# YEAR 6 EXPECTATIONS



# MASTERY IN MATHEMATICS

Year 6

## Year 6 Expectations

PV	<ul style="list-style-type: none"> <li>Use negative numbers in context, and calculate intervals across zero</li> </ul>
PV	<ul style="list-style-type: none"> <li>Round any whole number to a required degree of accuracy and solve problems which require answers to be rounded to a specific degree of accuracy</li> </ul>
ASMD	<ul style="list-style-type: none"> <li>Solve problems involving the relative sizes of two quantities where the missing values can be found by using integer multiplication and division facts</li> </ul>
ASMD	<ul style="list-style-type: none"> <li>Perform mental calculations, including with mixed operations with large numbers</li> </ul>
ASMD	<ul style="list-style-type: none"> <li>Divide numbers up to 4-digits by a 2-digit whole number using formal written methods of long division and interpret remainder in various ways</li> </ul>
ASMD	<ul style="list-style-type: none"> <li>Use knowledge of order of operations to carry out calculations involving all four operations</li> </ul>
RP	<ul style="list-style-type: none"> <li>Solve problems involving the calculation of percentages, (for example, of measures) such as 20% of 440 and the use of percentages for comparison</li> </ul>
F	<ul style="list-style-type: none"> <li>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination</li> </ul>
F	<ul style="list-style-type: none"> <li>Multiply 1-digit numbers with up to two decimal places by whole numbers</li> </ul>
F	<ul style="list-style-type: none"> <li>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</li> </ul>
F	<ul style="list-style-type: none"> <li>Multiply simple pairs of proper fractions, writing the answer in its simplest form</li> </ul>
F	<ul style="list-style-type: none"> <li>Divide proper fractions by whole numbers (<math>\frac{1}{8} \div 2 = \frac{1}{16}</math>)</li> </ul>
F	<ul style="list-style-type: none"> <li>Associate a fraction with division and calculate decimal fraction equivalents (for example, 0.375 for <math>\frac{3}{8}</math>)</li> </ul>
A	<ul style="list-style-type: none"> <li>Express missing number problems algebraically</li> </ul>
A	<ul style="list-style-type: none"> <li>Find pairs of numbers that satisfy number sentences involving two unknowns</li> </ul>

## Year 6 Expectations (continued)

	<b>G</b>	<ul style="list-style-type: none"><li>• Recognise, describe and build simple 3D shapes, including making nets</li></ul>
	<b>G</b>	<ul style="list-style-type: none"><li>• Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangle, quadrilateral and regular polygons</li></ul>
	<b>G</b>	<ul style="list-style-type: none"><li>• Illustrate and name parts of circles, including radius, diameter and circumference and know that the radius is half the diameter</li></ul>
	<b>M</b>	<ul style="list-style-type: none"><li>• Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places</li></ul>
	<b>M</b>	<ul style="list-style-type: none"><li>• Calculate the area of a parallelogram and triangles and calculate, estimate and compare volume of cubes and cuboids using standard units</li></ul>
	<b>S</b>	<ul style="list-style-type: none"><li>• Interpret and construct pie charts and line graphs and use these to solve problems</li></ul>

# Place Value



## Year 6: Place Value

<b>Place Value</b>	Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. Round any whole number to a required degree of accuracy.
	Use negative numbers in context, and calculate intervals across zero. Solve number and practical problems that involve all of the above.

**Spot the mistake**

Spot the mistake in this sequence of numbers:

-80; -40; 10; 50

### True or false

When I count backwards in 50s from 10 I will say -200?

### True or false?

The temperature is  $-5^{\circ}\text{C}$ , it gets  $2^{\circ}\text{C}$  warmer. It is now  $-5^{\circ}\text{C}$ .

### Place Value

What is the value of the digit 6 in these numbers?

6787555

95467754

### Create a number

Create seven digit numbers where the digit sum is 6 and the tens of thousands digit is 2. e.g. 3,020,001

What is the largest/smallest number you can make?

## Rounding

Two numbers each with two decimal places round to 23.1 to one decimal place. The total of the numbers is 46.2. What could the numbers be?

## Rounding

Give an example of a 6-digit number which rounds to the same number when rounded to the nearest 10000 and 100000.

## Consecutive numbers

Find 3 consecutive numbers.

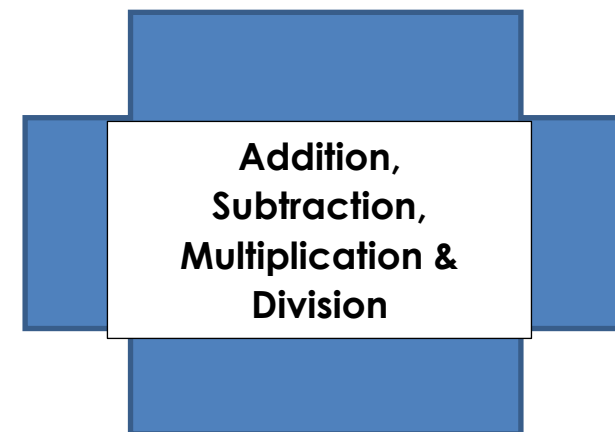
- The first has to be a multiple of 2
- The second a multiple of 3
- The third a multiple of 4.

Now find some more  
What do you notice?

Find 3 consecutive numbers.

- The first has to be a multiple of 3
- The second a multiple of 4
- The third a multiple of 5.

Now find some more  
What do you notice?



## Year 6: Addition, Subtraction, Multiplication & Division

Add, Sub, Mult, & Division	Multiply and divide numbers up to 4 digits by a 2-digit whole number using the formal written methods and interpret remainders as whole number remainders, fractions, or by rounding.
	Identify common factors, common multiples and prime numbers.
	Use their knowledge of the order of operations to carry out calculations involving the four operations.
	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

## Remembering your time at school

As a Year 6 pupil you will have done many things over and over again in school. The table below gives you an overview of some of these.

Activity	Minutes per day
Break time	60
Lining-up	10
Reading	45
Assembly	15
PE	30
Writing out learning objectives	5
Writing the date	2
Listening to a story	15

If every school year has 40 weeks and every school day has 360 minutes and you will have been in school for 7 years (Reception to Year 6), work out the following.

How long have you spent in school lining up?

How many more minutes, every year, will you have spent reading than doing PE?

What percentage of each day do you spend reading?

Create a pie chart showing the activities you do during a typical day? You will need to use a pair of compasses and a protractor for this.

(Don't forget that you will have a large proportion of time doing other activities that are not shown on the table – call this 'other' on your pie chart.)



## Mayan pyramids

When building a pyramid the Mayans discovered that it took:

- 5 men 1 day to cut out and shape 10 bricks
- 5 men 1 day to transport 4 bricks to the pyramid site;
- 2 men 1 day to lay 10 bricks in position on the pyramid.

Please note the men are only allowed to be deployed to one activity, ie, quarry men; transporters; or builders.

If all the bricks were already cut out of the quarry, how many bricks could 30 men have transported to the pyramid site in 1 week?

If you had 50 men at your disposal, show one way in which you could use them to ensure that at least 150 bricks were in position on the pyramid within one week?

## Your Saturdays

During a typical Saturday you recorded how you spent your time. The table below shows your break down.

Activity	Minutes per day
Sleeping	550
Reading	60
Eating	80
Washing, etc.	40
Playing on the computer	160
Watching TV	250
Talking on the telephone	50
Arguing with your sister or brother	40
Playing outside	150
Exercising	60

What percentage of a typical Saturday do you spend in total, watching TV and playing on the computer? (Give your answer to the nearest whole number.)

If there are 52 Saturdays in a year, how many more minutes in a year will you have spent playing on the computer compared with reading?

What percentage of each Saturday do you spend reading? (To the nearest whole number.)

Create a graph of your choice to show how you spend your Saturdays. (Choose an appropriate scale for your graph.)

Length of Longboat	Number of boats available	Number of Vikings that it could take	Cost of hiring 1 longboat (in Viking coins)
10m	3	25	250
8m	4	20	200
6m	6	15	180
4m	8	12	156
3m	15	10	150

### The Viking Problem

A Viking Lord needed to defend his settlement. He had an army of 305 Vikings at his disposal. He needed to get them to England, the cheapest possible way. He could hire as many of the 5 different longboats that he needed.

(The table below tells you the cost per Viking on each boat)

Type of Longboat	Cost per Viking
10m	10 Viking coins
8m	10 Viking Coins
6m	12 Viking coins
4m	13 Viking coins
3m	15 Viking coins

Work out how he could transport 305 men to England in the cheapest possible way.

Type of longboat	Number hired	Total number carried	Total Cost
10m			
8m			
6m			
4m			
3m			
		Total Cost	

### Missing number: True or false?

In the number sentence  $6.32 + \square = 8$ . Is the missing number 1.68?

### Missing symbols

Write the missing signs ( + - x ÷ ) in this number sentence:

$$6 \square 12.3 = 61.9 \square 11.9$$

### What else do you know?

If you know that  $86.7 + 13.3 = 100$ . Then, what other facts do you know?

### Finding numbers

Three 4-digit numbers total 12435.

What could they be?

### Estimating

Circle the number that is the best estimate to  $932.6 - 931.05$

1.3      1.5      1.7      1.9

## Always, sometimes, never

Is it always, sometimes or never true that the sum of two consecutive triangular numbers is a square number?

## Missing Number

$$2.4 \div 0.3 = \boxed{\phantom{00}} \times 1.25$$

Which number could be written in the box?

## Use a fact

$$12 \times 1.1 = 13.2$$

Use this fact to work out:

$$15.4 \div 1.1 =$$

$$27.5 \div 1.1 =$$

## Making links

$$0.7 \times 8 = 5.6$$

How can you use this fact to solve these calculations?

$$0.7 \times 0.08 =$$

$$0.56 \div 8 =$$

## Missing digits

What goes in the missing box?

$$18 \square 4 \div 12 = 157$$

$$38 \square 5 \div 18 = 212.5$$

$$33 \square 2 \div 8 = 421.5$$

$$38 \times \square .7 = 178.6$$

### Find the number

Find the smallest number that can be added to or subtracted from 87.6 to make it exactly divisible by  $\frac{8}{7}$ / $\frac{1}{18}$ .

### Always, sometimes, never

Is it always, sometimes or never true that dividing a whole number by a half makes the answer twice as big?

### Always, sometimes, never

Is it always, sometimes or never true that when you square an even number, the result is divisible by 4?

### Always, sometimes, never

Is it always, sometimes or never true that multiples of 7 are 1 more or 1 less than prime numbers?

### Which is correct?

Which of these number sentences is correct?

$$3 + 6 \times 2 = 15$$

$$6 \times 5 - 7 \times 4 = 92$$

$$8 \times 20 \div 4 \times 3 = 37$$

## Use the inverse

Use the inverse to check if the following calculations are correct:

$$2346 \times 46 = 332796$$

$$27.74 \div 19 = 1.46$$

## Size of an answer

The product of a 2-digit digit number and a number with two decimal places is 21.34

What could the numbers be?



## Matrix addition

Below there is a 3 x 3 matrix.

- Put in the numbers 1 to 9 in each square and only use the numbers once.
- Make up six 3-digit numbers by putting together each horizontal and each vertical line's numbers as shown below.
- Organise your matrix so that when added together your six 3-digit numbers add up to more than 4000
- Now organise your matrix so that when added together your six 3-digit numbers add up to less than 3000

### EXAMPLE

				<b>6</b>	<b>1</b>	<b>3</b>
				<b>9</b>	<b>5</b>	<b>7</b>
				<b>2</b>	<b>8</b>	<b>4</b>

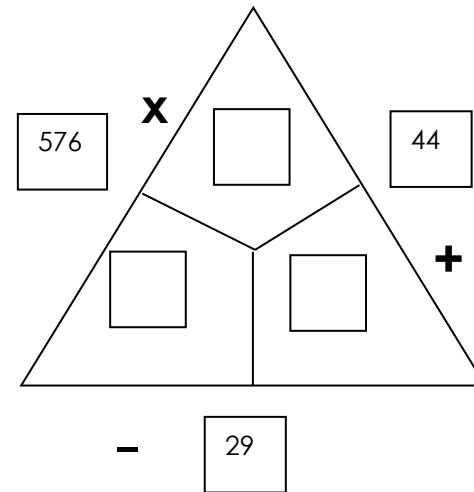
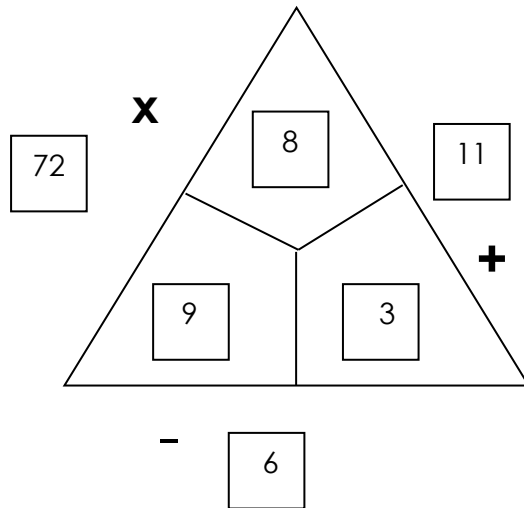
$$613 + 957 + 284 + 692 + 158 + 374 = 3,078$$

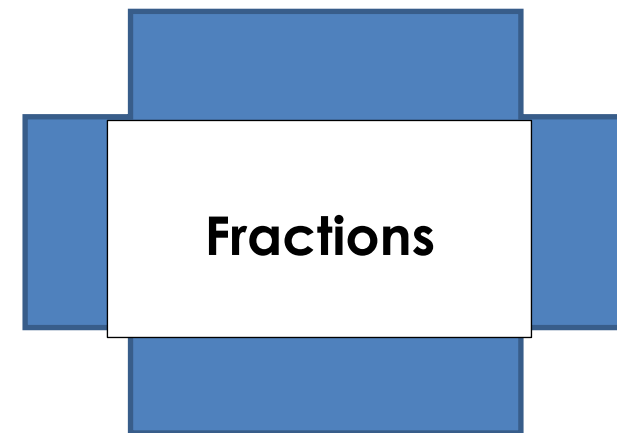
Now challenge yourself to get as close to 3,500 as you can.

Now challenge yourself to get the highest possible number.

## Triangular thinking

Look at the example on the left hand side below. Now complete the problem on the right hand side.





## Year 6: Fractions

Fractions	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.
	Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
	Multiply simple proper fractions and simplify the answer (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$ ). Divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$ ).
	Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places.
	Multiply one-digit numbers with up to two decimal places by whole numbers. Use written division methods in cases where the answer has up to two decimal places.
	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

## The blood in the human body

The human body contains 5 litres of blood. 45% of blood is made up of blood cells and 55% is made up of plasma. Work out the volume of blood cells and plasma we have.

If it takes approximately 30 seconds for 5 litres of blood to travel around the body, how much blood will have travelled around in 1 hour?

If the heart beats 72 times each minute, how much blood does the heart pump out with each beat (to the nearest hundredth of a litre)?

How much blood travels around the body in one hour?

How much blood does the heart pump with each beat?

## Heart beat

On average, the heart beats 72 times in one minute. When exercising the heart beats 50% faster and when sleeping the heart beats 25% slower.

Work out how many beats the heart will make if you exercise for 90 minutes and how many beats it makes if you are asleep for 6 hours?

If it takes approximately 30 seconds for the 5 litres of blood to travel around your body, how much blood will have travelled around your body in 1 day?

## Printing Company

A printing company has 20 people working for it for 8 hours each day. There are 3 different departments: printing; sorting and packing. They have to get books with 1,500 pages ready for sending out.

- It takes 1 person 1 minute to print 200 pages.
- It takes 1 person 1 minute to sort and bind 60 pages.
- It takes 1 person 5 minutes to pack and label 1 book for sending out.

If the publishing company has 10 people at its disposal how can it use them to make sure that they have at least 500 books ready after 5 days?

Department	People	Pages per minute	Pages per hour	Books per hour	Books per day
Printing	1	200	12,000	8	64
	2	600	24,000	16	128
Sorting	1	60	3,600	2.4	19.2
	2	120	7,200	4.8	38.4
Packing	1	-	-	12	96
	2			24	192

Department	Number of people

All 10 workers earned £9.50 per hour; each worked 8 hours per day. The books cost £25 each. How much profit or loss will the company make if they produce 500 books a week (5-day working week)?

## How much money?

One thousandth of my money is 31p.

How much do I have?

## True or false?

25% of 23km is longer than 0.2 of 20km.

## Find an example

Give an example of a **fraction** that is greater than 1.1 and less than 1.5.

## Ordering fractions

Sam put these fractions in order starting with the smallest. Are they in the correct order?

Thirty three fifths

Twenty three thirds

Forty five sevenths

## True or false?

In all of the numbers below, the digit 6 is worth more than 6 hundredths.

3.6      3.063      3.006      6.23      7.761      3.076

Is this true or false?

Change some numbers so that it is true.

## What needs to be added?

What needs to be added to 6.543 to make 7?

What needs to be added to 3.582 to make 5?

## Closest in value

Circle the two decimals which are closest in value to each other.

0.9      0.09      0.99      0.1      0.01

## Rounding

Write the answer of each calculation rounded to the nearest whole number.

$$75.7 \times 59$$

$$7734 \div 60$$

$$772.4 \times 9.7$$

$$20.34 \times (7.9 - 5.4)$$

## Same and different

What's the same, what's different?

... when you round numbers to one decimal place and two decimal places?

## Odd one out

Which is the odd one out in each of these collections of 4 fractions?

$$\frac{3}{4} \quad \frac{9}{12} \quad \frac{26}{36} \quad \frac{18}{24}$$

$$\frac{4}{20} \quad \frac{1}{5} \quad \frac{6}{25} \quad \frac{6}{30}$$



## Ordering

Put these in order, starting with the largest.

23%     $\frac{5}{8}$      $\frac{3}{5}$     0.8

## The answer is...

The answer is  $\frac{1}{8}$ , what is the question (involving fractions / operations)?

## Undoing

I multiply a number with three decimal places by a multiple of 10.

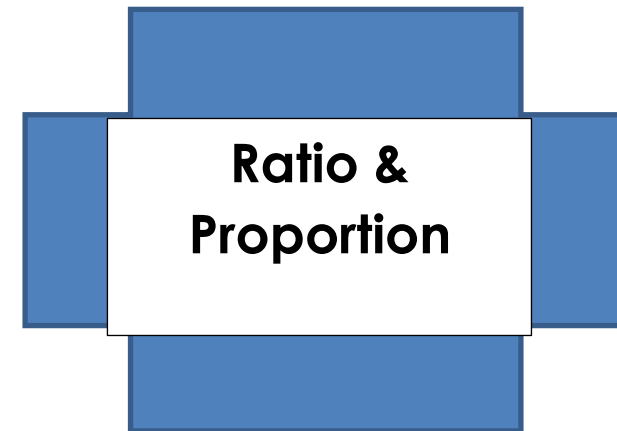
The answer is approximately 3.21

What was my number and what did I multiply by?

## Undoing

When I divide a number by 1000 the resulting number has the digit 6 in the units and tenths and the other digits are 3 and 2 in the tens and hundreds columns.

What could my number have been?



## Year 6: Ratio and Proportion

Ratio &  
Proportion

Solve problems involving the calculation of percentages (e.g. of measures) such as 20% of 360 and the use of percentages for comparison.

Solve problems involving similar shapes where the scale factor is known or can be found. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

## Planting bulbs

In a flower bed a gardener plants 3 red bulbs for every 4 white bulbs.

How many red and white bulbs might she plant?

If she has 100 white bulbs, how many red bulbs does she need to buy?

If she has 75 red bulbs, how many white bulbs does she need to buy?

If she wants to plant 140 bulbs altogether, how many of each colour should she buy?

## Mixing paint

Purple paint is made from red and blue paint in the ratio of 3:5. To make 40 litres of purple paint how much would I need of each colour?

## What do we know?

88% of a sum of money = £242. Make up some other statements.  
Write real life problems for your number sentences.

## Undoing

I think of a number and then reduce it by 15%. The number I end up with is 306. What was my original number?

## Sale

In a sale where everything is reduced by 15% I paid the following prices for three items.

£255, £850, £4.25

What was the original selling price?

## Unpicking

A recipe needs to include three times as much apple than peach. The total weight of apples and peaches in a recipe is 700 grams. How much apple do I need?

## Unpicking

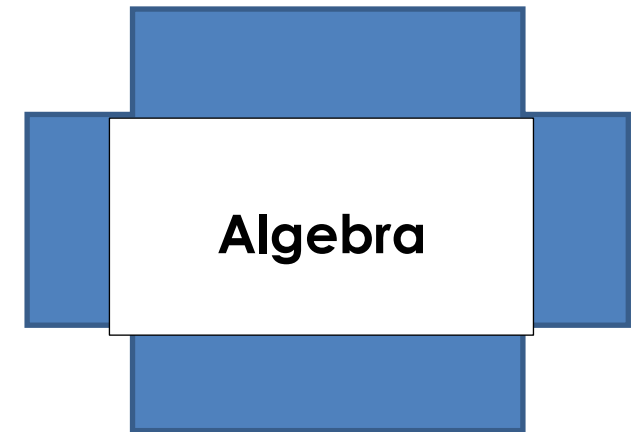
A 50-seater coach travels to the match. Most of the seats are taken.

Junior tickets cost £13 and Adult tickets cost £23.

The only people on the coach are Juniors and Adults.

The total amount paid for tickets is approximately £900.

How many people on the coach were adults and how many were juniors?



## Year 6: Algebra

Algebra	Express missing number problems algebraically. Use simple formulae expressed in words.
	Generate and describe linear number sequences.
	Find pairs of numbers that satisfy number sentences involving two unknowns. Enumerate all possibilities of combinations of two variables.

## Connected calculations

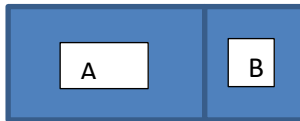
$p$  and  $q$  each stand for whole numbers.

$p + q = 1000$  and  $p$  is 150 greater than  $q$ .

Work out the values of  $p$  and  $q$ .

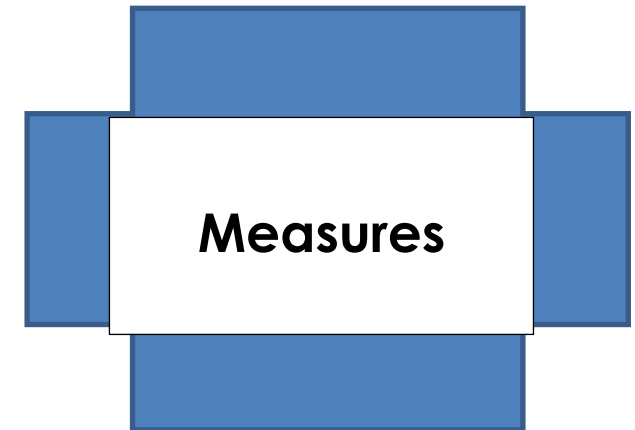
## Undoing

The diagram below represents two rectangular fields (A and B) that are next to each other.



Field A is twice as long as field B but their widths are the same and are 7.6 metres.

If the perimeter of the small field is 23m, what is the perimeter of the entire shape containing both fields?



## Year 6: Measures

Measures	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. Convert between miles and km.
	Use, read, write and convert between standard units of measure, converting length, mass, volume & time from smaller to larger units, and vice versa, using decimal notation to up to 3 decimal places.
	Recognise that shapes with the same areas can have different perimeters and vice versa.
	Calculate the area of parallelograms and triangles. Recognise when it is possible to use formulae for area and volume of shapes.
	Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed ( $\text{cm}^3$ ) and cubic metres ( $\text{m}^3$ ), and extending to other units.

## Reading maps

On a map of the locality, 2.5cm represents 1km. Work out the actual distances between the towns and the amount of time it would take to travel between the towns if:

- The measurement between Town A and town B is 100 cm.
- A road between Town A and Town B measures 25% more than the distance as measured on a map.
- A car travels at 30km per hour between the two towns.

Distance between Town A and B (as measured on a map).

Time to travel by road between Town A and Town B.

## Battery Life

An electronic toy robot uses 1,500 hours' worth of battery time per year. There are 3 types of batteries that can be bought. Using the table below, work out which battery provides best value for money for powering the robot.

	Battery Type A	Battery Type B	Battery Type C
Lifespan (in hours)	25 hours	30 hours	50 hours
Cost	£12.50	£16.75	£21.30

Best Value

Least Value



## Tickets for pop event

A group of 4 music fans wanted to see all their 3 favourite groups perform but wanted to do it in the cheapest way. The groups were performing at 4 different venues. The table below shows the cost of the tickets at each venue and the cost for each person to get there.

Group	Venue	Ticket cost
<b>All Directions</b>	Birmingham	£15
	Manchester	£12
	London	£20
	Glasgow	£10
<b>Big Mixture</b>	Birmingham	£20
	Manchester	£25
	London	£18
	Glasgow	£13
<b>McFluffy</b>	Birmingham	£26
	Manchester	£18
	London	£16
	Glasgow	£19

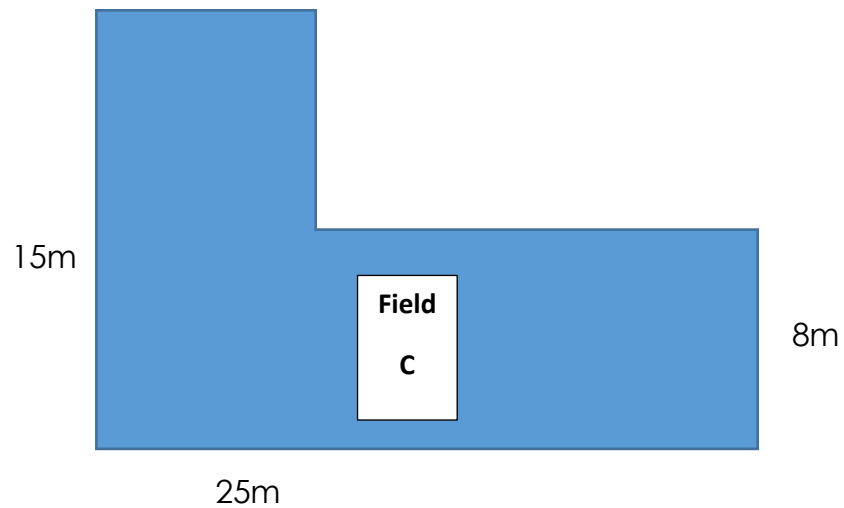
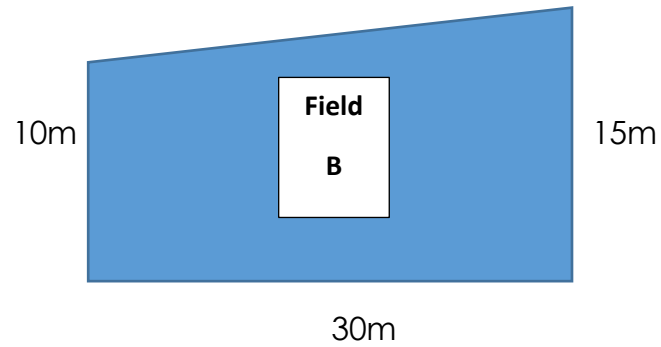
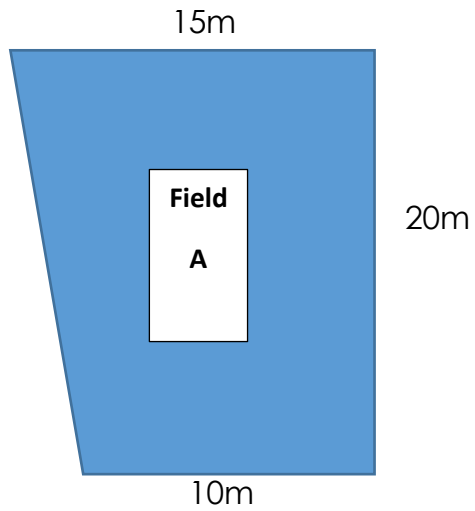
They had to buy 4 tickets but could travel to the venues together.

The cost for all 4 to get to the venues were as follows: Birmingham £25; London £30; Manchester £15 and Glasgow £22.

Work out how they can go and watch all 3 groups in the cheapest possible way.

## Farming Problem

A farm has 3 irregular shaped fields. Throughout the year, the farmer uses these fields to produce 3 types of fruit and vegetables: apples; pears and potatoes.



Each of the fields can produce either 25kg of apples per m<sup>2</sup>; 20kg of pears per m<sup>2</sup> or 60kg of potatoes per m<sup>2</sup>.  
 The farmer can sell his apples to the supermarket at 25p per kg for apples; 30p per kg for pears and 12p per kg for potatoes.

He has to produce all three crops

- (a) Which crop will make the most money?
- (b) Which crop will make the least amount of money?

Use the grids below to help you.

Field	Area	Fruit produced (kg)			Money made		
		A	Pe	Po	A	Pe	Po
Area of Field A							
Area of Field B							
Area of Field C							

If the farmer can only grow one crop in each field. Which crop should he grow where to make most profit?

Blank area for the student to provide their answer to the question above.

## Football fans

4 football fans wanted to see their favourite team play against 4 different teams but wanted to do it the cheapest way possible. Their team was playing against the teams outlined below. The table below shows the cost of the tickets against each team and the cost for each person to get there.

Team played against	Ticket cost	Cost for all 4 to get there
Birmingham	£15	£60
Manchester	£17	£75
London	£20	£83
Glasgow	£10	£75
Cardiff	£20	£78
Swindon	£25	£65
Newcastle	£18	£30
Liverpool	£19	£50
Coventry	£26	£23
Bristol	£18	£48
Bedford	£16	£63
Norwich	£19	£73

They had to buy 4 tickets for each match but could travel to the venues together.

Work out how they can go and watch 4 matches but spend as little as possible. Use the table provided to help you.

Team played against	4 Tickets will cost	Cost for all 4 to get there	Total Cost
Birmingham			
Manchester			
London			
Glasgow			
Cardiff			
Swindon			
Newcastle			
Liverpool			
Coventry			
Bristol			
Bedford			
Norwich			

Matches watched:			
Total Cost:			

## Order

Put these amounts in order starting with the largest.

100 cm<sup>3</sup>

1000000 mm<sup>3</sup>

1 m<sup>3</sup>

## Undoing

A film lasting 200 minutes finished at 17:45.

At what time did it start?

## Cuboid

A cuboid has a volume between 200 and 250 cm cubed.

Each edge is at least 4cm long.

List four possibilities for the dimensions of the cuboid.

## Cuboid

Chen, Megan and Sam have parcels.

Megan's parcel weighs 1.2kg, Chen's parcel is 1500g and Sam's parcel is half the weight of Megan's parcel.

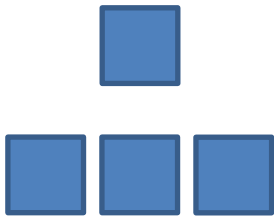
Write down some other statements about the parcels.

How much heavier is Megan's parcel than Chen's parcel?

## Perimeter

A square has a perimeter of 12 cm. When 4 squares are put together, the perimeter of the new shape can be calculated.

For example:



What arrangements will give the maximum perimeter?

## Always, sometimes, never

The area of a triangle is half the area of the rectangle that encloses it. Circle your answer.

always      sometimes      never

## Miles and miles

8 km = 5 miles

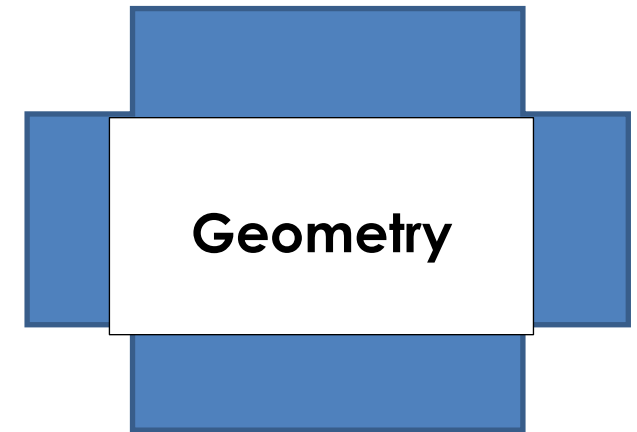
16km =  miles

4 km =  miles

Fill in the missing number of miles.

Write down some more facts connecting kilometres and miles.



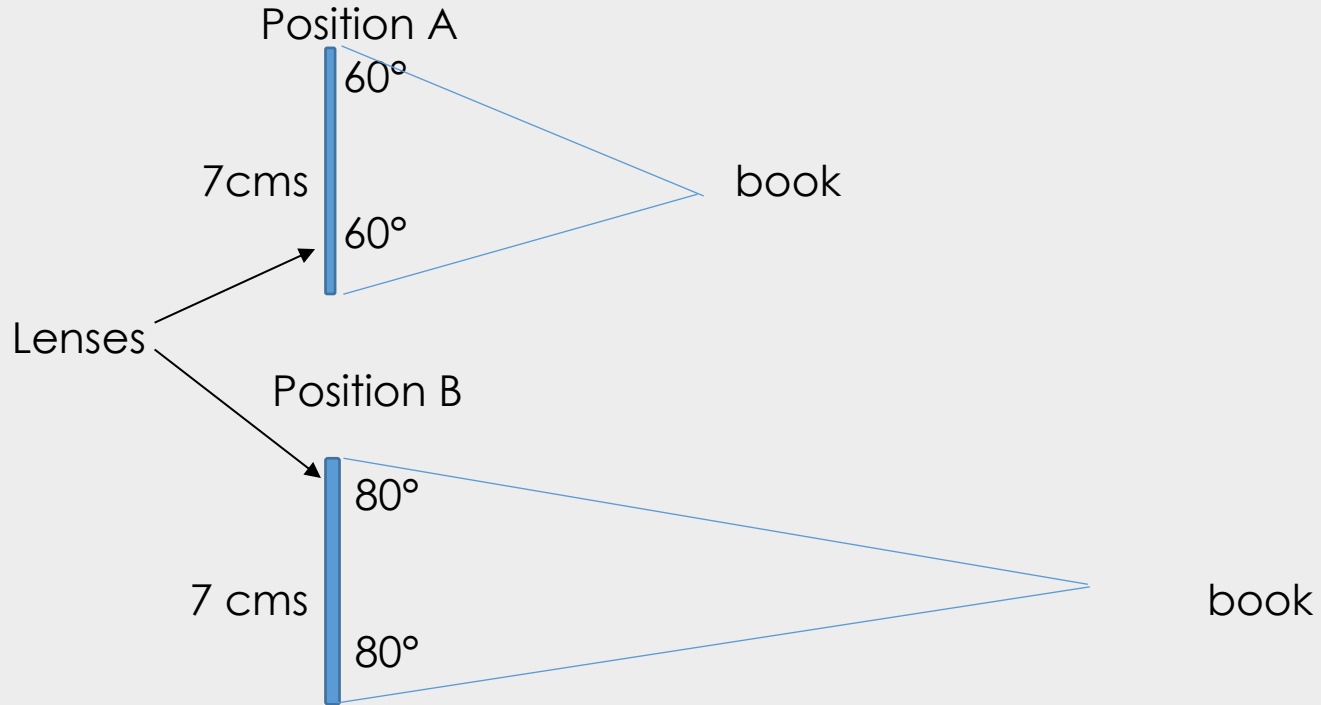


## Year 6: Geometry

<b>Geometry</b>	Draw 2-D shapes using given dimensions and angles. Recognise, describe and build simple 3-D shapes, including making nets.
	Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.
	Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.
	Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

## Reading glasses

A person finds out that he can read very well using a 7 cm lens in Position A, if he holds his book at a  $60^\circ$  angle from the lens. If he wears another type of lens, he can hold his book further away at an angle of  $80^\circ$  from the lens (Position B).



If the lens is 7cm, make a diagram to find out how far he needs to hold the book for both Position A and B.

## What's the same, what is different

What is the same and what is different about the nets of a triangular prism and a square based pyramid?

## Visualising

Jess has 24 cubes which she builds to make a cuboid. Write the dimensions of cuboids that she could make.

List all the possibilities.

## Possibilities

If one angle of an isosceles triangle is 36 degrees.

What could the triangle look like? Draw it.

Are there other possibilities?

## Net

Draw a net for a cuboid that has a volume of  $24 \text{ cm}^3$ .

### Always, sometimes, never

Is it always, sometimes or never true that, in a polyhedron, the number of vertices plus the number of faces equals the number of edges?

always

sometimes

never

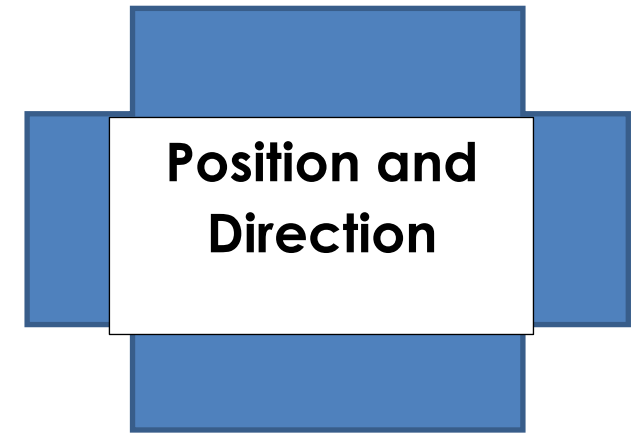
### Always, sometimes, never

Is it always, sometimes or never true that, two of the angles of an isosceles right angled triangle measure  $45^\circ$ ?

always

sometimes

never



## Year 6: Position & Direction

<b>Position &amp; Direction</b>	Describe positions on the full coordinate grid (all four quadrants).
	Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

## Working backwards

Two triangles have the following co-ordinates:

Triangle A:

(3, 5) (7, 5) (4, 7)

Triangle B:

(3, 1) (7, 1) (4, 3)

Describe the translation of triangle A to B and then from B to A.



## Year 6: Statistics

Statistics	Interpret and construct pie charts and line graphs and use these to solve problems.
	Calculate and interpret the mean as an average.

## Average

Make up a set of five numbers with a mean of 2.7

## Average

Make up a set of eight numbers with a mean of 5.75.

## Missing Information

The mean score in six spelling tests, with 20 questions, is 15.

Five of the scores were 13, 12, 17, 18, 16

What was the missing score?



