

Subject: Maths

Exam board AQA 8300 (Sets 1, 2, 3 and 4)
and overall exam code:

Exam contents: 3 written papers covering the whole specification
(Higher)

Paper	Length	Calculator/ Non calculator	Exam date	Marks	Percentage of overall GCSE
1	1hr 30 mins	Non-Calculator	24 MAY	80	33.3%
2	1hr 30 mins	Calculator	7 JUNE	80	33.3%
3	1hr 30 mins	Calculator	12 JUNE	80	33.3%

Subject: Maths

Exam board AQA 8300 (Set 5)
and overall exam code:

Exam contents: 3 written papers covering the whole specification
(Foundation)

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1	1hr 30 mins	Non-Calculator	24 MAY	80	33.3%
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Exam Advice

1. Doing well in maths involves more than just getting the numbers right – it's about explaining your methods and communicating your understanding clearly. If there is space before the answer line the examiner is expecting to see how you calculated your answer, show all the steps in your working.
2. Read the questions carefully and underline or highlight key words. More marks are lost through failure to read questions carefully than any other single cause.
3. Pace yourself sensibly in the exam. If you have spent more than 5 minutes on one question, go onto the next one even if you have not finished. Come back to it when you have done all the others.
4. Remember to bring all necessary equipment to the exam – black pens, pencils, ruler, rubber, calculator (when allowed), compass and circular protractor.
5. Do not go into the exam tired – go to bed early the night before.

Revision tips

- Remember that you can't revise maths by reading about it: you revise maths by DOING it. There is no substitute for practising questions from the textbook, from revision workbooks, from the internet and, most importantly, from **past exam papers**.
- Aim to work through at least one past paper a week, increasing to three or four a week as the exams approach. Always mark your answers using the official mark schemes.
- Set aside an appropriate amount of time for each paper and mark the slot clearly on your revision timetable sheet.
- If there is a question on a paper that you have struggled to answer, don't just dismiss it - *do something about it*. Look up the topic, read examples and then try the question again or ask a maths teacher to help you.
- Use the MyMaths Booster Packs. If you log on to MyMaths, these are easy to find. You can use the GCSE Booster 4 and 5, 6 and 7 or 8 and 9. You may find that your teacher has already set you these as tasks to do.

Maths subject content for sets 1, 2, 3 and 4 (Higher)

1: Basic number	1.1 Solving real-life problems	Solve problems set in a real-life context.
	1.2 Multiplication and division with decimals	Multiply a decimal number by another decimal number. Divide by a decimal number.
	1.3 Approximation of calculations	Round to a given number of significant figures. Estimate before calculating. Round a calculation to give a reasonable answer.
	1.4 Multiples, factors, prime numbers, powers and roots	Find multiples and factors. Identify prime numbers. Identify square and triangular numbers. Find square roots. Identify cubes and cube roots.
	1.5 Prime factors, LCM and HCF	Identify prime factors. Identify the least common multiple of two numbers. Identify the highest common factor of two multiples.
	1.6 Negative numbers	Multiply and divide positive and negative numbers.
2: Fractions, ratio and proportion	2.1 One quantity as a fraction of another	Find one quantity as a fraction of another.
	2.2 Adding, subtracting and calculating with fractions	Add and subtract fractions with different denominators.
	2.3 Multiplying and dividing fractions	Multiply proper fractions and mixed numbers. Divide by fractions.
	2.4 Fractions on a calculator	Use a calculator to accurately solve problems involving fractions.
	2.5 Increasing and decreasing quantities by a percentage	Increase and decrease quantities by a percentage.
	2.6 Expressing one quantity as a percentage of another	Work out percentage change. Express one quantity as a percentage of another.
3: Statistical diagrams and averages	3.1 Statistical representation	Draw and interpret bar charts and pie charts. Draw and interpret line graphs.
	3.2 Statistical measures	Use averages to solve more complex problems.

		<p>Identify the advantages and disadvantages of each type of average and learn which one to use in different situations.</p> <p>Work out and use the range of a set of data.</p> <p>Calculate the mode, the median and the mean from a frequency table.</p> <p>Identify the modal group.</p> <p>Estimate the mean from a grouped frequency table.</p>
	3.3 Scatter diagrams	<p>Draw, interpret and use scatter diagrams.</p> <p>Draw and use a line of best fit.</p>
4: Number and sequences	4.1 Patterns in number	Recognise patterns in number sequences.
	4.2 Number sequences	Generate sequences, given the n th term.
	4.3 Finding the n th term of a linear sequence	Find the n th term of a linear sequence.
	4.4 Special sequences	Recognise and continue some special number sequences such as square numbers.
	4.5 General rules from given patterns	Find the n th term from practical problems involving sequences.
	4.6 The n th term of a quadratic sequence	Generate the terms of a quadratic sequence from the n th term.
	4.7 Finding the n th term for quadratic sequences	Work out the n th term of a quadratic sequence.
5: Ratio and proportion	5.1 Ratio	<p>Simplify a ratio.</p> <p>Express a ratio as a fraction.</p> <p>Divide amounts in given ratios.</p> <p>Complete calculations from a given ratio and partial information.</p>
	5.2 Direct proportion problems	Recognise and solve problems that involve direct proportion.
	5.3 Best buys	Find either the cost per unit mass or the mass per unit cost and use to this to find which product is cheaper.
	5.4 Compound measures	Recognise and solve problems involving the compound measures of rates of pay, speed, density and pressure.
	5.5 Compound interest and repeated percentage change	<p>Calculate simple and compound interest.</p> <p>Solve problems involving repeated percentage change.</p>

	5.6 Reverse percentage (working out the original amount)	Calculate the original amount after a known percentage change.
6: Angles	6.1 Angle facts	To know the sum of the angles on a straight line and around a point. Use vertically opposite angles.
	6.2 Triangles	To solve missing angle problems in triangles.
	6.3 Angles in a polygon	To work out the sum of the interior angles in a polygon.
	6.4 Regular polygons	To be able to calculate the size of the interior and exterior angles of any regular polygon.
	6.5 Angles in parallel lines	To solve problems involving alternate, corresponding, allied and opposite angles.
	6.6 Special quadrilaterals	To be able to calculate the size of angles in special quadrilaterals using their geometric properties
	6.7 Scale drawings and bearings	To read scale drawings and maps. To draw scale drawings. To use a bearing to specify a direction.
7: Transformations, constructions and loci	7.1 Congruent triangles	Demonstrate that two triangles are congruent.
	7.2 Rotational symmetry	Find the order of rotational symmetry for a 2D shape. Recognise shapes with rotational symmetry.
	7.3 Transformations	Translate, reflect, rotate and enlarge a 2D shape.
	7.4 Combinations of transformations	Combine transformations.
	7.5 Bisectors	Construct the bisectors of lines and angles. Construct angles of 60° and 90° .
	7.6 Defining a locus	Draw a locus for a given rule.
	7.7 Loci problems	Solve practical problems using loci.
	7.8 Plans and elevations	Construct and interpret plans and elevations of 3D shapes.
8: Algebraic manipulation	8.1 Basic algebra	Recognise expressions, equations, formulae and identities. Substitute into, manipulate and simplify algebraic expressions.
	8.2 Factorisation	Factorise an algebraic expression.
	8.3 Quadratic expansion	Expand two binomials to obtain a quadratic expression.
	8.4 Expanding squares	Expand the square of a binomial.

	8.5 More than two binomials	Expand more than two binomials.
	8.6 Quadratic factorisation	Factorise a quadratic expression of the form $x^2 + ax + b$ into two linear brackets.
	8.7 Factorising $ax^2 + bx + c$	Factorise a quadratic expression of the form $ax^2 + bx + c$ into two linear brackets.
	8.8 Changing the subject of a formula	Change the subject of a formula.
9: Length, area and volume	9.1 Circumference and area of a circle	Calculate the circumference and area of a circle.
	9.2 Area of a parallelogram	Calculate the area of a parallelogram.
	9.3 Area of a trapezium	Calculate the area of a trapezium.
	9.4 Sectors	Calculate the length of an arc. Calculate the area and angle of a sector.
	9.5 Volume of a prism	Calculate the volume of a prism.
	9.6 Cylinders	Calculate the volume and surface area of a cylinder.
	9.7 Volume of a pyramid	Calculate the volume of a pyramid.
	9.8 Cones	Calculate the volume and surface area of a cone.
	9.9 Spheres	Calculate the volume and surface area of a sphere.
10: Linear graphs	10.1 Drawing linear graphs from points	Draw linear graphs by finding points.
	10.2 Gradient of a line	Find the gradient of a straight line. Draw a line with a certain gradient.
	10.3 Drawing graphs by gradient-intercept and cover-up methods	Draw graphs using the gradient-intercept method. Draw graphs using the cover-up method.
	10.4 Finding the equation of a line from its graph	Find the equation of a line, using its gradient and intercept. Find the equation of a line given two points on the line.
	10.5 Real-life uses of graphs	Convert from one unit to another unit by using a conversion graph. Use straight-line graphs to find formulae.
	10.6 Solving simultaneous equations using graphs	Solve simultaneous linear equations using graphs.
	10.7 Parallel and perpendicular lines	Draw linear graphs parallel or perpendicular to other lines and passing through a specific point.
11: Right-angled triangles	11.1 Pythagoras' theorem	Calculate the length of the hypotenuse in a right angled triangle.

	11.2 Finding the length of the shorter side	Calculate the length of a shorter side in a right angled triangle.
	11.3 Applying Pythagoras' theorem in real-life situations	Solve practical problems involving Pythagoras' theorem.
	11.4 Pythagoras' theorem and isosceles triangles	Use Pythagoras' theorem and isosceles triangles.
	11.5 Pythagoras' theorem in three dimensions	Use Pythagoras' theorem to solve problems involving three dimensions
	11.6 Trigonometric ratios	Use the three trigonometric ratios.
	11.7 Calculating angles	Use the trigonometric ratios to calculate an angle.
	11.8 Using the sine and cosine functions	Find lengths of sides and angles in right-angled triangles using the sine and cosine functions.
	11.9 Using the tangent function	Find lengths of sides and angles in right-angled triangles using the tangent function.
	11.10 Which ratio to use	Decide which trigonometric ratio to use in a right-angled triangle.
	11.11 Solving problems using trigonometry	Solve practical problems using trigonometry. Solve problems using an angle of elevation or an angle of depression.
	11.12 Trigonometry and bearings	Solve bearing problems using trigonometry.
	11.13 Trigonometry and isosceles triangles	Use trigonometry to solve problems involving isosceles triangles.
12: Similarity	12.1 Similar triangles	Show two triangles are similar. Work out the scale factor between similar triangles.
	12.2 Areas and volumes of similar shapes	Solve problems involving the area and volume of similar shapes.
13: Exploring and applying probability	13.1 Experimental probability	Calculate experimental probabilities and relative frequencies. Estimate probabilities from experiments. Use different methods to estimate probabilities.
	13.2 Mutually exclusive exhaustive outcomes	Recognise mutually exclusive, complementary and exhaustive events.
	13.3 Expectation	Predict the likely number of successful events, given the number of trials and the probability of any one outcome.

	13.4 Probability and two-way tables	Read two-way tables and use them to work out probabilities.
	13.5 Probability and Venn diagrams	Use Venn diagrams to solve probability questions.
14: Powers and standard form	14.1 Powers (indices)	Use powers (also known as indices). Multiply and divide by powers of 10.
	14.2 Rules for multiplying and dividing powers	Use rules for multiplying and dividing powers.
	14.3 Standard form	Change a number into standard form. Calculate using numbers in standard form.
15: Equations and inequalities	15.1 Linear equations	Solve equations in which the variable (the letter) appears as part of the numerator of a fraction. Solve equations where you have to expand brackets first Solve equations where the variable appears on both sides of the equals sign Set up equations from given information and then solve them.
	15.2 Elimination methods for simultaneous equations	Solve simultaneous linear equations in two variables using the elimination method.
	15.3 Substitution method for simultaneous equations	Solve simultaneous linear equations in two variables using the substitution method.
	15.4 Balancing coefficients to solve simultaneous equations	Solve simultaneous linear equations by balancing coefficients.
	15.5 Using simultaneous equations to solve problems	Solve problems using simultaneous linear equations.
	15.6 Linear inequalities	Solve a simple linear inequality and represent it on a number line.
	15.7 Graphical inequalities	Show a graphical inequality Find regions that satisfy more than one graphical inequality.
	15.8 Trial and improvement	Estimate the answer to an equation that does not have an exact solution using trial and improvement.
16: Counting, accuracy, powers and surds	16.1 Rational numbers, reciprocals, terminating and recurring decimals	Recognise rational numbers, reciprocals, terminating decimals and recurring decimals. Convert terminal decimals to fractions. Convert fractions to recurring decimals. Find reciprocals of numbers or fractions.

	16.2 Estimating powers and roots	How to estimate powers and roots of any given positive number.
	16.3 Negative and fractional powers	Apply the rules of powers to negative and fractional powers. Find and use the relationship between negative powers and roots.
	16.4 Surds	Simplify surds. Calculate and manipulate surds, including rationalising a denominator.
	16.5 Limits of accuracy	Find the error interval or limits of accuracy of numbers that have been rounded to different degrees of accuracy.
	16.6 Problems involving limits of accuracy	Combine limits of two or more variables together to solve problems.
	16.7 Choices and outcomes	Work out the number of choices, arrangements or outcomes when choosing from lists or sets.
17: Quadratic equations	17.1 Plotting quadratic graphs	Draw and read values from quadratic graphs.
	17.2 Solving quadratic equations by factorisation	Solve a quadratic equation by factorisation. Rearrange a quadratic equation so that it can be factorised.
	17.3 Solving a quadratic equation by using the quadratic formula	Solve a quadratic equation by using the quadratic formula. Recognise why some quadratic equations cannot be solved.
	17.4 Solving quadratic equations by completing the square	Solve a quadratic equation by completing the square.
	17.4 <i>continued</i> Solving quadratic equations by completing the square	Solve a quadratic equation by completing the square.
	17.5 The significant points of a quadratic curve	Identify the significant points of a quadratic function graphically. Identify the roots of a quadratic function by solving a quadratic equation. Identify the turning point of a quadratic function by using symmetry or completing the square.

	17.6 Solving one linear and one non-linear equation using graphs	Solve a pair of simultaneous equations where one is linear and one is non-linear, using graphs.
	17.7 Solving quadratic equations by the method of intersection	Solve equations by the method of intersecting graphs.
	17.8 Solving linear and non-linear simultaneous equations algebraically	Solve simultaneous equations where one equation is linear and the other is non-linear.
	17.9 Quadratic inequalities	Solve quadratic inequalities.
18: Sampling and more complex diagrams	18.1 Collecting data	Understand sampling. Collect unbiased reliable data for a sample.
	18.2 Frequency polygons	Draw and interpret frequency polygons.
	18.3 Cumulative frequency graphs	Draw and interpret cumulative frequency graphs.
	18.4 Box plots	Draw and interpret box plots.
	18.5 Histograms	Draw and interpret histograms where the bars are of equal width. Draw and interpret histograms where the bars are of unequal width. Calculate the median, quartiles and interquartile range from a histogram.
19: Combined events	19.1 Addition rules for outcomes of events	Work out the probability of different outcomes of combined events.
	19.2 Combined events	Work out the probability of two outcomes or events occurring at the same time.
	19.3 Tree diagrams	Use tree diagrams to work out the probability of combined events.
	19.4 Independent events	Use the connectors 'and' and 'or' to work out the probabilities for combined events.
	19.5 Conditional probability	Work out the probability of combined events when the probabilities change after each event.
20: Properties of circles	20.1 Circle theorems	Prove and use circle theorems to work out angles created in a circle from points on a circumference.
	20.2 Cyclic quadrilaterals	Find the size of angles in cyclic quadrilaterals.
	20.3 Tangents and chords	Use tangents and chords to find the size of angles in circles.
	20.4 Alternate segment theorem	Use the alternate segment theorem to find the size of angles in circles.

21: Variation	21.1 Direct proportion	Solve problems where two variables have a directly proportional relationship. Work out the constant of proportionality.
	21.2 Inverse proportion	Solve problems where two variables have an inversely proportional relationship. Work out the constant of proportionality.
22: Triangles	22.1 Further 2D problems	Use trigonometric ratios and Pythagoras' theorem to solve more complex two-dimensional problems.
	22.2 Further 3D problems	Use trigonometric ratios and Pythagoras' theorem to solve more complex three-dimensional problems.
	22.3 Trigonometric ratios of angles between 0° and 360°	Find the sine, cosine and tangent of any angle from 0° to 360°
	22.4 Solving any triangle	Use the sine rule and the cosine rule to find sides and angles in any triangle
	22.5 Using sine to calculate the area of any triangle	Work out the area of a triangle if you know two sides and the included angle.
23: Graphs	23.1 Distance –time graphs	Interpret distance–time graphs Draw a graph of the depth of liquid as a container is filled.
	23.2 Velocity–time graphs	Read information from a velocity–time graph. Work out the distance travelled from a velocity–time graph. Work out the acceleration from a velocity–time graph.
	23.3 Estimating the area under a curve	Use areas of rectangles, triangles and trapeziums to estimate the area under a curve. Interpret the meaning of the area under a curve.
	23.4 Rates of change	Draw a tangent at a point on a curve and use it to work out the gradient at a point on a curve. Interpret the gradient at a point on a curve.
	23.5 Equation of a circle	Find the equation of a tangent to a circle.
	23.6 Other graphs	Recognise and plot cubic, exponential and reciprocal graphs.
	23.7 Transformation of the graph $y = f(x)$	Transform a graph

24: Algebraic fractions and functions	24.1 Algebraic fractions	Simplify algebraic fractions Solve equations containing algebraic fractions.
	24.2 Changing the subject of a formula	Change the subject of a formula where the subject occurs more than once.
	24.3 Functions	Find the output of a function. Find the inverse function.
	24.4 Composite functions	Find the composite of two functions.
	24.5 Iteration	Find an approximate solution for an equation using the process of iteration.
25: Vector geometry	25.1 Properties of vectors	Add and subtract vectors.
	25.2 Vectors in geometry	Use vectors to solve geometric problems.

Maths subject content for sets 5 (Foundation)

1: Number: Basic number	1.1 Place value and ordering numbers	<ul style="list-style-type: none"> • use a number line to represent negative numbers • use inequalities with negative numbers • compare and order positive and negative numbers.
	1.3 The four rules	<ul style="list-style-type: none"> • use the four rules of arithmetic with integers and decimals.
	1.2 Order of operations and BIDMAS	<ul style="list-style-type: none"> • work out the answers to problems with more than one mathematical operation.
2: Geometry and measures: Measures and scale drawings	2.1 Systems of measurement	<ul style="list-style-type: none"> • convert from one metric unit to another • convert from one imperial unit to another.
	2.2 Conversion factors	<ul style="list-style-type: none"> • use approximate conversion factors to change between imperial units and metric units.
	2.3 Scale drawings	<ul style="list-style-type: none"> • read and draw scale drawings • use a scale drawing to make estimates.
	2.4 Nets	<ul style="list-style-type: none"> • draw nets of some 3D shapes • identify a 3D shape from its net.
	2.5 Using an isometric grid	<ul style="list-style-type: none"> • read from and draw on isometric grids • interpret diagrams to draw plans and elevations.

3: Statistics: Charts, tables and averages	3.1 Frequency tables	<ul style="list-style-type: none"> • use tally charts and frequency tables to collect and represent data • use grouped frequency tables to collect and represent data.
	3.2 Statistical diagrams	<ul style="list-style-type: none"> • draw pictograms to represent statistical data • draw bar charts and vertical line charts to represent statistical data.
	3.3 Line graphs	<ul style="list-style-type: none"> • draw a line graph to show trends in data.
	3.4 Statistical averages	<ul style="list-style-type: none"> • work out the mode, median, mean and range of small sets of data • decide which is the best average to use to represent a data set.
4: Geometry and measures: Angles	4.1 Angles facts	<ul style="list-style-type: none"> • calculate angles on a straight line • calculate angles around a point • use vertically opposite angles.
	4.2 Triangles	<ul style="list-style-type: none"> • recognise and calculate the angles in different sorts of triangle.
	4.3 Angles in a polygon	<ul style="list-style-type: none"> • calculate the sum of the interior angles in a polygon.
	4.4 Regular polygons	<ul style="list-style-type: none"> • calculate the exterior angles and the interior angles of a regular polygon.
	4.5 Angles in parallel lines	<ul style="list-style-type: none"> • calculate angles in parallel lines.
	4.6 Special quadrilaterals	<ul style="list-style-type: none"> • use angle properties in quadrilaterals.
	4.7 Bearings	<ul style="list-style-type: none"> • use a bearing to specify a direction.
5: Number: Number properties	5.1 Multiples of whole numbers	<ul style="list-style-type: none"> • find multiples of whole numbers • recognise multiples of numbers.
	5.2 Factors of whole numbers	<ul style="list-style-type: none"> • identify the factors of a number.
	5.3 Prime numbers	<ul style="list-style-type: none"> • identify prime numbers.
	5.4 Prime factors, LCM and HCF	<ul style="list-style-type: none"> • identify prime factors • identify the lowest common multiple (LCM) of two numbers • identify the highest common factor (HCF) of two numbers.
	5.5 Square numbers	<ul style="list-style-type: none"> • identify square numbers • use a calculator to find the square of a number.
	5.6 Square roots	<ul style="list-style-type: none"> • recognise the square roots of square numbers up to 225 • use a calculator to find the square roots of any number.
	5.7 Basic calculations on a calculator	<ul style="list-style-type: none"> • use some of the important keys when working on a calculator.
6: Number: Approximations	6.1 Rounding whole numbers	<ul style="list-style-type: none"> • round a whole number.
	6.2 Rounding decimals	<ul style="list-style-type: none"> • round decimal numbers to a given accuracy.
	6.3 Approximating calculations	<ul style="list-style-type: none"> • identify significant figures • round numbers to a given number of significant figures

		<ul style="list-style-type: none"> • use approximation to estimate answers and check calculations • round a calculation at the end of a problem, to give what is considered to be a sensible answer.
	7.3 Writing one quantity as a fraction of another	<ul style="list-style-type: none"> • work out a fraction of a quantity • find one quantity as a fraction of another.
	7.4 Adding and subtracting fractions	<ul style="list-style-type: none"> • add and subtract fractions with different denominators.
	7.5 Multiplying and dividing fractions	<ul style="list-style-type: none"> • multiply proper fractions • multiply mixed numbers • divide by fractions.
	7.6 Fractions on a calculator	<ul style="list-style-type: none"> • use a calculator to add and subtract fractions • use a calculator to multiply and divide fractions.
8: Algebra: Linear graphs	8.1 Graphs and equations	<ul style="list-style-type: none"> • use flow diagrams to draw graphs • work out the equations of horizontal and vertical lines.
	8.2 Drawing linear graphs by finding points	<ul style="list-style-type: none"> • draw linear graphs without using flow diagrams.
	8.3 Gradient of a line	<ul style="list-style-type: none"> • work out the gradient of a straight line • draw a line with a certain gradient.
	8.4 $y = mx + c$	<ul style="list-style-type: none"> • draw graphs using the gradient-intercept method • draw graphs using the cover-up method.
	8.5 Finding the equation of a line from its graph	<ul style="list-style-type: none"> • work out the equation of a line, using its gradient and y-intercept • work out the equation of a line given two points on the line.
	8.6 The equation of a parallel line	<ul style="list-style-type: none"> • work out the equation of a linear graph that is parallel to another line and passes through a specific point.
	8.7 Real-life uses of graphs	<ul style="list-style-type: none"> • convert from one unit to another unit by using a conversion graph • use straight-line graphs to work out formulae.
	8.8 Solving simultaneous equations using graphs	<ul style="list-style-type: none"> • solve simultaneous linear equations using graphs.
9: Algebra: Expressions and formulae	9.1 Basic algebra	<ul style="list-style-type: none"> • write an algebraic expression • recognise expressions, equations, formulae and identities.
	9.2 Substitution	<ul style="list-style-type: none"> • substitute into, simplify and use algebraic expressions.
	9.3 Expanding brackets	<ul style="list-style-type: none"> • expand brackets such as $2(x - 3)$ • expand and simplify brackets.
	9.4 Factorisation	<ul style="list-style-type: none"> • factorise an algebraic expression.
	9.5 Quadratic expansion	<ul style="list-style-type: none"> • expand two linear brackets to obtain a quadratic expression.

	9.6 Quadratic factorisation	<ul style="list-style-type: none"> factorise a quadratic expression of the form $x^2 + ax + b$ into two linear brackets.
	9.7 Changing the subject of a formula	<ul style="list-style-type: none"> change the subject of a formula.
10: Ratio and proportion and rates of change: Ratio, speed and proportion	10.1 Ratio	<ul style="list-style-type: none"> simplify a ratio express a ratio as a fraction divide amounts into given ratios complete calculations from a given ratio and partial information.
	10.2 Speed, distance and time	<ul style="list-style-type: none"> recognise the relationship between speed, distance and time calculate average speed from distance and time calculate distance travelled from the speed and the time taken calculate the time taken on a journey from the speed and the distance.
	10.3 Direct proportion problems	<ul style="list-style-type: none"> recognise and solve problems that involve direct proportion.
	10.4 Best buys	<ul style="list-style-type: none"> find the cost per unit mass find the mass per unit cost use the above to find which product is better value.
11: Geometry and measures: Perimeter and area	11.1 Rectangles	<ul style="list-style-type: none"> calculate the perimeter and area of a rectangle.
	11.2 Compound shapes	<ul style="list-style-type: none"> calculate the perimeter and area of a compound shape made from rectangles.
	11.3 Area of a triangle	<ul style="list-style-type: none"> calculate the area of a triangle use the formula for the area of a triangle.
	11.4 Area of a parallelogram	<ul style="list-style-type: none"> calculate the area of a parallelogram use the formula for the area of a parallelogram.
	11.5 Area of a trapezium	<ul style="list-style-type: none"> calculate the area of a trapezium use the formula for the area of a trapezium.
	11.6 Circles	<ul style="list-style-type: none"> recognise terms used for circle work calculate the circumference of a circle.
	11.7 The area of a circle	<ul style="list-style-type: none"> calculate the area of a circle.
	11.8 Answers in terms of π	<ul style="list-style-type: none"> give answers for circle calculations in terms of π.
12: Geometry and measures: Transformations	12.1 Rotational symmetry	<ul style="list-style-type: none"> work out the order of rotational symmetry for a 2D shape recognise shapes with rotational symmetry.
	12.2 Translation	<ul style="list-style-type: none"> translate a 2D shape.
	12.3 Reflections	<ul style="list-style-type: none"> reflect a 2D shape in a mirror line.

	12.4 Rotations	<ul style="list-style-type: none"> • rotate a 2D shape about a point
	12.5 Enlargements	<ul style="list-style-type: none"> • enlarge a 2D shape by a scale factor.
	12.6 Using more than one transformation	<ul style="list-style-type: none"> • use more than one transformation.
	12.7 Vectors	<ul style="list-style-type: none"> • represent vectors • add and subtract vectors.
13: Probability: Probability and events	13.1 Calculating probabilities	<ul style="list-style-type: none"> • use the probability scale and the language of probability • calculate the probability of an outcome of an event.
	13.2 Probability that an outcome will not happen	<ul style="list-style-type: none"> • calculate the probability of an outcome not happening when you know the probability of that outcome happening.
	13.3 Mutually exclusive and exhaustive outcomes	<ul style="list-style-type: none"> • recognise mutually exclusive and exhaustive outcomes.
	13.4 Experimental probability	<ul style="list-style-type: none"> • calculate experimental probabilities and relative frequencies from experiments • recognise different methods for estimating probabilities.
	13.5 Expectation	<ul style="list-style-type: none"> • predict the likely number of successful outcomes, given the number of trials and the probability of any one outcome.
	13.6 Choices and outcomes	<ul style="list-style-type: none"> • apply systematic listing and counting strategies to identify all outcomes for a variety of problems.
14: Geometry and measures: Volumes and surface areas of prisms	14.1 3D shapes	<ul style="list-style-type: none"> • use the correct terms when working with 3D shapes.
	14.2 Volume and surface area of a cuboid	<ul style="list-style-type: none"> • calculate the surface area and volume of a cuboid.
	14.3 Volume and surface area of a prism	<ul style="list-style-type: none"> • calculate the volume and surface area of a prism.
	14.4 Volume and surface area of cylinders	<ul style="list-style-type: none"> • calculate the volume and surface area of a cylinder.
15: Algebra: Linear equations	15.1 Solving linear equations	<ul style="list-style-type: none"> • solve linear equations such as $3x - 1 = 11$ where the variable only appears on one side • use inverse operations and inverse flow diagrams • solve equations by balancing • solve equations in which the variable (the letter) appears in the numerator of a fraction
	15.2 Solving equations with brackets	<ul style="list-style-type: none"> • solve equations where you have to first expand brackets.

	15.3 Solving equations with the variable on both sides	<ul style="list-style-type: none"> • solve equations where the variable appears on both sides of the equals sign.
16: Ratio and proportion and rates of change: Percentages and compound measures	16.1 Equivalent percentages, fractions and decimals	<ul style="list-style-type: none"> • convert percentages to fractions and decimals and vice versa.
	16.2 Calculating a percentage of a quantity	<ul style="list-style-type: none"> • calculate a percentage of a quantity.
	16.3 Increasing and decreasing quantities by a percentage	<ul style="list-style-type: none"> • increase and decrease quantities by a percentage.
	16.4 Expressing one quantity as a percentage of another	<ul style="list-style-type: none"> • express one quantity as a percentage of another • work out percentage change.
	16.5 Compound measures	<ul style="list-style-type: none"> • recognise and solve problems involving the compound measures of rates of pay, density and pressure.
17: Ratio and proportion and rates of change: Percentages and variation	17.1 Compound interest and repeated percentage change	<ul style="list-style-type: none"> • calculate simple interest • calculate compound interest • solve problems involving repeated percentage change.
	17.2 Reverse percentage (working out the original value)	<ul style="list-style-type: none"> • calculate the original amount, given the final amount, after a known percentage increase or decrease.
	17.3 Direct proportion	<ul style="list-style-type: none"> • solve problems in which two variables have a directly proportional relationship (direct variation) • work out the constant of proportionality • recognise graphs that show direct variation.
	17.4 Inverse proportion	<ul style="list-style-type: none"> • solve problems in which two variables have an inversely proportional relationship (inverse variation) • work out the constant of proportionality.
18: Statistics: Representation and interpretation	18.1 Sampling	<ul style="list-style-type: none"> • obtain a random sample from a population • collect unbiased and reliable data for a sample.
	18.2 Pie charts	<ul style="list-style-type: none"> • draw and interpret pie charts.
	18.3 Scatter diagrams	<ul style="list-style-type: none"> • draw, interpret and use scatter diagrams • draw and use a line of best fit.
	18.4 Grouped data and averages	<ul style="list-style-type: none"> • identify the modal group • calculate an estimate of the mean from a grouped table.

19: Geometry and measures: Constructions and loci	19.1 Constructing triangles	<ul style="list-style-type: none"> • construct accurate drawings of triangles, using a pair of compasses, a protractor and a straight edge.
	19.2 Bisectors	<ul style="list-style-type: none"> • construct the bisectors of lines and angles • construct angles of 60° and 90°
	19.3 Defining a locus	<ul style="list-style-type: none"> • draw a locus for a given rule.
	19.4 Loci problems	<ul style="list-style-type: none"> • solve practical problems using loci.
20: Geometry and measures: Curved shapes and pyramids	20.1 Sectors	<ul style="list-style-type: none"> • calculate the length of an arc • calculate the area and angle of a sector.
	20.2 Pyramids	<ul style="list-style-type: none"> • calculate the volume and surface area of a pyramid.
	20.3 Cones	<ul style="list-style-type: none"> • calculate the volume and surface area of a cone.
	20.4 Spheres	<ul style="list-style-type: none"> • calculate the volume and surface area of a sphere.
21: Algebra: Number and sequences	21.1 Patterns in number	<ul style="list-style-type: none"> • recognise patterns in number sequences.
	21.2 Number sequences	<ul style="list-style-type: none"> • recognise how number sequences are built up • generate sequences, given the nth term.
	21.3 Finding the n th term of a linear sequence	<ul style="list-style-type: none"> • find the nth term of a linear sequence.
	21.4 Special sequences	<ul style="list-style-type: none"> • recognise and continue some special number sequences • understand how prime, odd and even numbers interact in addition, subtraction and multiplication problems.
	2.5 General rules from given patterns	<ul style="list-style-type: none"> • find the nth term from practical problems involving sequences.
22: Geometry and measures: Right-angled triangles	22.1 Pythagoras' theorem	<ul style="list-style-type: none"> • Know what Pythagoras' theorem is • calculate the length of the hypotenuse in a right-angled triangle.
	22.2 Calculating the length of a shorter side	<ul style="list-style-type: none"> • calculate the length of a shorter side in a right-angled triangle.
	22.3 Applying Pythagoras' theorem in real-life situations	<ul style="list-style-type: none"> • Solve problems using Pythagoras' theorem
	22.4 Pythagoras' theorem and isosceles triangles	<ul style="list-style-type: none"> • use Pythagoras' theorem in isosceles triangles.
	22.5 Trigonometric ratios	<ul style="list-style-type: none"> • define, understand and use the three trigonometric ratios.
	22.6 Calculating lengths using trigonometry	<ul style="list-style-type: none"> • use trigonometric ratios to calculate a length in a right-angled triangle.
	22.7 Calculating angles using trigonometry	<ul style="list-style-type: none"> • use the trigonometric ratios to calculate an angle.

	22.8 Trigonometry without a calculator	<ul style="list-style-type: none"> work out and remember trigonometric values for angles of 30°, 45°, 60° and 90°.
	22.9 Solving problems using trigonometry	<ul style="list-style-type: none"> solve practical problems using trigonometry solve problems using an angle of elevation or an angle of depression.
	22.10 Trigonometry and bearings	<ul style="list-style-type: none"> solve bearing problems using trigonometry.
	22.11 Trigonometry and isosceles triangles.	<ul style="list-style-type: none"> use trigonometry to solve problems involving isosceles triangles.
23: Geometry and measures: Congruency and similarity	23.1 Congruent triangles	<ul style="list-style-type: none"> demonstrate that two triangles are congruent.
	23.2 Similarity	<ul style="list-style-type: none"> recognise similarity in any two shapes show that two shapes are similar work out the scale factor between similar shapes.
24: Probability: Combined events	24.1 Combined events	<ul style="list-style-type: none"> work out the probabilities when two or more events occur at the same time.
	24.2 Two-way tables	<ul style="list-style-type: none"> read two-way tables and use them to work out probabilities.
	24.3 Probability and Venn diagrams	<ul style="list-style-type: none"> use Venn diagrams to solve probability questions.
	24.4 Tree diagrams	<ul style="list-style-type: none"> understand frequency tree diagrams and probability tree diagrams use probability tree diagrams to work out the probabilities involved in combined events.
25: Number: Powers and standard form	25.1 Powers (indices)	<ul style="list-style-type: none"> write a number as a power of another number use powers (also known as indices) multiply and divide by powers of 10.
	25.2 Rules for multiplying and dividing powers	<ul style="list-style-type: none"> use rules for multiplying and dividing powers multiply and divide numbers by powers of 10.
	25.3 Standard form	<ul style="list-style-type: none"> write a number in standard form calculate with numbers in standard form.
26: Algebra: Simultaneous equations and linear inequalities	26.1 Elimination method for simultaneous equations	<ul style="list-style-type: none"> solve simultaneous linear equations in two variables using the elimination method.
	26.2 Substitution method for simultaneous equations	<ul style="list-style-type: none"> solve simultaneous linear equations in two variables using the substitution method.

	26.3 Balancing coefficients to solve simultaneous equations	<ul style="list-style-type: none"> • solve simultaneous linear equations by balancing coefficients.
27: Algebra: Non-linear graphs	27.1 Distance-time graphs	<ul style="list-style-type: none"> • interpret distance-time graphs • draw a graph of the depth of liquid as a container is filled.
	27.2 Plotting quadratic graphs	<ul style="list-style-type: none"> • draw and read values from quadratic graphs.
	27.3 Solving quadratic equations by factorisation	<ul style="list-style-type: none"> • solve a quadratic equation by factorisation.
	27.4 The significant points of a quadratic curve	<ul style="list-style-type: none"> • identify the significant points of a quadratic function graphically • identify the roots of a quadratic function by solving a quadratic equation. • identify the turning point of a quadratic function.
	27.5 Cubic and reciprocal graphs	<ul style="list-style-type: none"> • recognise and plot cubic and reciprocal graphs.