

**Exam Board:** Edexcel

**Subject:** Mathematics

**Papers:** 1 Non-calculator and 2 Calculator

**Marks available:** 80 per paper

**Length of paper:** 1 hour 30 mins

**Topics:** Algebra, Number, Statistics, Geometry and Ratio and proportion

**Exam Information, guidance and hints**

**Command words:** A range of command words are used within the GCSE paper. Here are a few to help you get your revision started.

<b>Explain:</b> Write a sentence or mathematical statement to show how you got to your answer or researched your conclusion	<b>Show:</b> All workings needed to get to a given answer <b>or</b> complete a diagram to show given information.	<b>Draw:</b> Produce an accurate drawing (unless a sketch is being drawn).	<b>Sketch:</b> Produce a drawing that does not have to be drawn to scale or a graph that is drawn without working out each coordinate.	<b>Find:</b> Some workings will be needed to get to the final answer.
<b>Expand:</b> Remove brackets.	<b>Expand and simplify:</b> Remove brackets and then collect like terms.	<b>Describe:</b> Write a sentence that gives the features of the situation.	<b>Complete:</b> Fill in missing values.	<b>Justify:</b> Show all workings and/or give a written explanation.
<b>Solve:</b> Find the solution of an equation or inequality.	<b>Solve algebraically:</b> Find the solution of an equation or inequality; algebraic manipulation must be shown.	<b>Simply:</b> Make something smaller/shorter.	<b>Simplify fully:</b> Make something smaller/shorter (the answer must be in simplest form).	<b>Factorise:</b> Insert brackets by taking out a common factor.
<b>Factorise fully:</b> Insert brackets by taking out the highest common factor.	<b>Express:</b> Re-write in another form, some workings may be needed.	<b>Work out:</b> Some workings will be needed to get to the answer.	<b>Change:</b> Convert from one unit to another; either using known metric unit	<b>Give a reason:</b> Must be clear and accurate. If the reasons are geometrical

			conversion or the use of a conversion graph.	make sure you a) provide a reason for each stage of your working and b) use correct geometric terminology.
<b>Write down:</b> No workings are needed.	<b>Write:</b> no working is needed for a 1 mark question (this may not be the case for questions worth more than one mark).	<b>Calculate:</b> A calculator and some workings will be needed.	<b>Prove:</b> More formal than 'show', all steps must be present. In the case of a geometrical proof, reasons must be given.	<b>Prove algebraically:</b> Use algebraic notation throughout the proof.

**Videos and markschemes:**

**Sparx**

The platform used for homework has sections available for independent learning and revision for assessments or to deepen your understanding.

**Website** - <https://sparxmaths.com/>

**Hannah Kettle**

A qualified Maths teacher who works closely with exam boards and schools around GCSE revision. Hannah can be found on TikTok, Instagram, Youtube and via her website. Hannah Kettle's specialism is revision material throughout the year, going live weekly in the lead up to mocks and exams to support your revision at home. Past students have enjoyed her revision videos.

**TikTok/Instagram/Youtube/Twitter handle** - @hannahkettlemaths

**Website** - <https://www.hannahkettlemaths.co.uk/>

**Maths Genie**

A website with a vast amount of resources. If you are looking for topics specific content, maths genie proves a detailed video, exam questions linked to the topic and solutions for your to mark your work (both as mark schemes but also in a more student friendly format of worked solutions). Not only do they offer topic specific resources, they also offer paper specific revision. A whole section of their website is dedicated to past papers with solutions in three different formats (video, worked solutions and mark schemes).

**Website** - <https://www.mathsgenie.co.uk/>

**On Maths**

Some students prefer to work on a platform that marks their exam paper for them as they go along. On Maths offers paper based revision content that is tailored to previous exam papers but offers infinite tries at papers. Students receive a running total at the end of each paper allowing them to see when they have met a certain grade and what the correct answer is. Students have access to a video solution which will support their development and show the correct answer entailed in the markscheme.

**Website** - <https://www.onmaths.com/>

**1st Class Maths**

Another free website with past papers, worked solutions and video solutions. 1st Class Maths work closely with exam boards and Hannah Kettle in producing predicted papers tailored to exam series.

**Website** - <https://www.1stclassmaths.com/>

**Hints/tips:**

- Show your workings - Every method mark counts!
- The paper is 80 marks, not just 25 or more questions - so try every question.
- 80 marks in 90 minutes - Aim for a minute a mark and it will leave you with 10 minutes to check your work.
- CHECK IT! Make sure you have read the question and check your response multiple times before the end of the exam.
- Don't scribble out your workings - a neat line through will allow the answer to see your method regardless if it is right or wrong.
- Make sure you attempt each question, if you can't complete the question fully, can you try and start the question (this often gets you part marks!).
- Your exam is an excuse to show off your maths, so take the opportunity and show the examiner what we see in lessons every day.

<u>Number</u>	Key information related to topic	How well do you understand this topic? RAG		
		Red	Amber	Green
Ordering Integers, Fractions, Decimals	Ascending and descending.			
Four Operations with Integers, Decimals,	Add, subtract, multiply and divide.			

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<b>Negatives</b>				
<b>Four Operations with Fractions</b>	Add, subtract, multiply and divide (including mixed numbers).			
<b>Converting Fractions, Decimals and Percentages</b>	Conversion between all three formats. Ascending and descending when placing in order.			
<b>Prime Factor Decomposition</b>	Expressing a number as a product of prime factors.			
<b>Highest Common Factor, Lowest Common Multiple</b>	Finding the highest common factor by listing factors. Find the lowest common multiple by listing multiples. Finding the HCF and LCM by using the product of prime factors and venn diagrams.			
<b>Standard Form</b>	Conversion between ordinary numbers and standard form (and back the other way). Basic 4 operations with standard form. Adjusting into standard form.			
<b>Powers and Roots</b>	Square numbers up to $15^2$ . Cube numbers up to $5^3$ and $10^3$ . Powers of 2. Powers of 10. Roots (square roots and cube roots of above).			
<b>Simplifying Fractions</b>	Simplifying numerical fractions and some basic algebraic fractions.			
<b>Rounding</b>	Rounding to various place values (decimal places or tens etc) and also significant figures.			
<b>Estimation</b>	Use rounding to estimate values of different calculations.			
<b>Best Buys</b>	Recipes, conversion rates, value for money, comparisons			

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	and work rate problems.			
<b>Compound and Simple Interest</b>	Using the formulae. Substitution. Multipliers for increase and decrease.			
<b>Percentages, Amounts, Change, Reverse</b>	Find percentages of an amount. Increasing and decreasing amounts by percentages. Find percentage changes. Work with reverse percentages.			

<b><u>Ratio and proportion</u></b>	<b>Key information related to topic</b>	<b>How well do you understand this topic? RAG</b>		
		<b>Red</b>	<b>Amber</b>	<b>Green</b>
<b>Simplifying Ratio</b>	Simplifying fully. Simplifying to 1:n or n:1. Simplifying with different units.			
<b>Dividing in a Ratio</b>	Sharing/dividing/splitting an amount (with and without units) across a ratio of two or more parts. Sharing/dividing/splitting within a ratio when you know one part. Sharing/dividing/splitting within a ratio when you know the difference of two parts.			
<b>Scale Diagrams</b>	Using a scale. Drawing images given a scale. Finding the scale.			

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<b>Proportion</b>	Working with recipes. Conversion rates. Non algebraic direct proportion. Work rate problems.			
<b>Recipes</b>	Scaling up and down within recipes. Finding how many you can make given a recipe and a quantity.			

<b>Algebra</b>	<b>Key information related to topic</b>	<b>How well do you understand this topic? RAG</b>		
		<b>Red</b>	<b>Amber</b>	<b>Green</b>
<b>Expressions, Collecting Like Terms</b>	Simplifying expressions by collecting terms that are similar/like.			
<b>Substitution</b>	Replacing the letter with its numerical value.			
<b>Expanding Brackets (Single and Double)</b>	Using the FOIL method to remove the brackets.			
<b>Index Laws</b>	Multiplication = Add powers Division = Subtract powers Power of a power = Multiply the powers Negative power = Creates a fraction Fractional power = Denominator is the type of root and numerator is the power after.			
<b>Linear Graphs</b>	$y = mx + c$ ( $m$ = gradient of the line and $c$ = $y$ intercept) State the gradient and midpoint (from an equation and a graph). Find the midpoint of coordinates and on a graph. Plot graph from equation.			

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<b>Linear Equations</b>	<p>Solve equations using inverse operations. Types to solve:</p> <ul style="list-style-type: none"> <li>• One step equations</li> <li>• Two step equations</li> <li>• Equations with brackets</li> <li>• Equations with fractions</li> <li>• Unknowns on both sides</li> <li>• Unknowns on both sides with brackets/fractions</li> </ul>			
<b>Sequences</b>	<p>Continue on with a pattern. State the term to term rule. Find the nth term rule. Explaining why a term is or is not in a sequence. Representing sequences pictorially.</p>			
<b>Changing the Subject</b>	Using inverse operations.			
<b>Inequalities</b>	<p>Solve inequalities. State integers in an inequality. Draw inequalities on a number line.</p>			
<b>Factorising Expressions</b>	Placing expressions into brackets based on common features.			
<b>Other Sequences</b>	Triangular, Fibonacci, quadratic and geometric sequences.			

<b><u>Statistics</u></b>	<b>Key information related to topic</b>	<b>How well do you understand this topic? RAG</b>		
		<b>Red</b>	<b>Amber</b>	<b>Green</b>
<b>Probability Scale</b>	<p>Understanding the word descriptions for probability. Being able to place a cross on a scale of 0 to 1 showing the</p>			

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	likelihood of an event happening.			
<b>Probability of single events</b>	Represented using fractions.			
<b>Frequency Trees</b>	Constructing Frequency trees. Completing Frequency trees. Analysing Frequency trees.			
<b>Experimental probability</b>	The difference between theoretical probability and experimental probability.			
<b>Venn Diagrams</b>	Drawing venn diagrams. Completing venn diagrams. Analysing venn diagrams.			
<b>Probability Trees</b>	Constructing Probability trees. Completing Probability Trees. Analysing Probability trees.			
<b>Box Plots</b>	Drawing box plots. Completing box plots. Finding the mean, lower quartile, upper quartile and the interquartile range. Comparing two or more sets of data using a box plot.			
<b>Frequency polygons</b>	Drawing Frequency Polygon. Completing Frequency Polygon. Analysing Frequency Polygon.			
<b>Histograms</b>	Drawing Histograms with equal class widths. Completing Histograms with equal class widths. Analysing Histograms with equal class widths.			
<b>Mode, Median, Mean and Range</b>	Mode, Median, Mean and Range from a list. Mode, Median, Mean and Range from a table.			



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	Mode, Median, Mean and Range from a grouped table.			
<b>Quartiles and interquartile range</b>	Finding the lower quartile (LQ), Upper quartile (UQ) and interquartile range (IQR) from a list and from a graph (including a box plot).			
<b>Sampling</b>	Understanding the definition of sample. Knowing the different types of samples. Knowing the advantages and disadvantages of different types of samples. Knowing the steps to complete a random sample. Completing a stratified sample.			
<b>Scatter Graphs</b>	Plotting/Drawing scatter graphs. Correlation vs relationship. Interpolation and extrapolation.			

<b><u>Geometry</u></b>	<b>Key information related to topic</b>	<b>How well do you understand this topic? RAG</b>		
		<b>Red</b>	<b>Amber</b>	<b>Green</b>
<b>Properties of 2D/3D shapes</b>	Naming 2D shapes.			
<b>Angles</b>	Angles in a right angle. Angles on a straight line. Angles at a point. Corresponding angles in parallel lines. Alternate angles in parallel lines. Co-interior angles in parallel lines.			
<b>Angles in Triangles</b>	To know and apply the properties of equilateral triangles, isosceles triangles, right angle triangles and scalene			

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	triangles.			
<b>Angles in polygons</b>	Total angles in a polygon (regular and irregular). Missing angles in a polygon (regular and irregular). Exterior and interior angles (regular and irregular).			
<b>Circles</b>	Find the circumference and area of circles (including semi-circles, arcs and sectors).			
<b>Perimeter</b>	To find and work with perimeter of 2D shapes (including compound shapes)			
<b>Area</b>	To find and work with area of 2D shapes (including compound shapes)			
<b>Volume and Surface Area</b>	To find the volume of 3D shapes. To find the surface area of 3D shapes.			
<b>Transformations (Translate, Rotate, Reflect, Enlarge)</b>	Translate shapes using movements and vectors. Rotate shapes with a movement clockwise or anticlockwise of a degree with a centre. Reflect shapes in mirror lines (both those given and equations). Enlarge shapes with a scale factor (and those with a centre of enlargement). To be able to work with all 4 transformations to describe a transformation.			
<b>Congruence and Similarity</b>	Solve problems using congruence and similarity (scale factors, missing sides etc).			
<b>Constructions and Loci</b>	Draw triangles, locus of point(s), bisectors, perpendicular lines etc using a compass, a pencil and a ruler.			
<b>Pythagoras</b>	Use Pythagoras' Theorem to find a missing side (long and			

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	short sides).			
<b>Trigonometry</b>	Use trigonometry to find the missing side or angle. Know exact trig values.			