

Number	<p>Solve complex problems involving index laws</p> <p>Evaluate numbers with positive, fractional and negative indices</p> <p>Rationalise simple fractions with a surd as the denominator e.g.: $\frac{3}{\sqrt{3}}$</p> <p>Write the denominator in terms of its prime factors, determine whether a fraction can be expressed as a recurring or terminating decimal.</p> <p>Calculate limits using upper and lower bounds</p>
Algebra	<p>Rearrange formulae with same variable on both sides</p> <p>Solve Quadratics using the formula, factorising and including completing the square</p> <p>Recognise the difference of two squares</p> <p>Algebraic proof – to show algebraic expressions are equivalent, and use algebra to support and construct arguments and proofs. e.g.: explain why $(n+1)(n+20)$ is an even number</p> <p>Plot and find the equation of a circle</p> <p>Calculate the equation of a line given two points and the equations of a perpendicular line</p> <p>Solve inequalities algebraically and graphically</p>
Ratio &	<p>Solve problems involving inverse and direct proportion including squares, square roots</p> <p>Plot and interpret exponential functions ($y=k^x$) for positive values of k</p> <p>Use similarity in length, area and volume to calculate scale factors and vice versa</p>
Geometry	<p>Identify trigonometric graphs</p> <p>Use and apply Pythagoras in 3D situations e.g.: diagonal lengths in cuboid and lengths of lines given 3D coordinates</p> <p>Calculate the area of any given triangle using $\frac{1}{2}ab\sin C$</p> <p>Use and apply both sine and cosine rule to triangles and apply to bearing questions</p> <p>Enlarge a shape given a negative fractional scale factor</p> <p>Use and apply all circle theorems</p> <p>Use graphs to solve problems involving distance, speed and acceleration</p>
Statistics	<p>Construct and interpret histograms</p> <p>Use moving averages to identify seasonality and trends in time series data and use them to make predictions</p> <p>Understand the structure of a stratified sample and calculate the proportion</p>
Probability	<p>Use a tree diagram to calculate conditional probability</p>

