

# Year 7 & 8 - Revision Check List A

Unit content	Mathswatchvle.com Clip
<p><b>Algebra 1 Expressions:</b> forming expressions, simplifying by collecting like terms, expanding single or double brackets, factorising expressions by removing common factors, use index notation, know and use index laws for multiplication and division of integer powers, add and simplify simple algebraic fractions, expand 2 linear expressions, difference of two squares. Factorise quadratics.</p> <p><b>Algebra 2 Co-ordinates:</b> Plot and identify co-ordinates in all 4 quadrants, Draw shapes with given coordinates or find missing coordinates of a shape by considering properties of different shapes, find a midpoint of two coordinates on a line A and B given the coordinates of A and B, find either A or B having been given the midpoint and either A or B.</p> <p><b>Algebra 3 Sequences:</b> Generating sequences from rules and nth term, finding the nth term rule for linear equations, generate terms of any type of sequence using term-to-term and position-to-term rules, find the next term or stated term given the nth term rule of quadratic sequences, recognise and use sequences of a triangular, square and cube numbers, recognise and use Fibonacci-type sequences (rule will be given).</p> <p><b>Algebra 4 Equations:</b> Forming equations, solving equations with unknowns on both sides, brackets and fractional or negative solutions (negatives anywhere in the equation), solve equations involving algebraic fractions, solving quadratics by factorising, linear simultaneous equations, solve linear inequalities and represent the solution set on a number line.</p> <p><b>Algebra 5 Formulae:</b> 1. Substitute numerical values into formulae and expressions, including scientific formulae 2. Understand and use standard mathematical formulae; rearrange formulae to change the subject 3. Model situations or procedures by translating them into algebraic expressions or formulae</p>	<p><b>Algebra 1</b> A6, A7a, A7b, A8, A9, A18</p> <p><b>Algebra 2</b> A1a, A1b</p> <p><b>Algebra 3</b> A11a, A11b, A11c, A22, A23b</p> <p><b>Algebra 4</b> A12, A17, A19a, A19b, A20, A20b</p> <p><b>Algebra 5</b> A10, A13a, A13b</p>
<p><b>Geometry 1 Area and Perimeter:</b> Calculate area and perimeter of rectangles, triangles, parallelograms, trapeziums and compounds shapes, find the area and circumference of circles and parts of circles.</p> <p><b>Geometry 2 Units of Measure and Scales:</b> Identify suitable metric units for weight, distance and capacity, interpret scales and compare readings, convert between units of measurement (including using decimals), convert between area or volume measures, use and interpret maps and scale drawings to find lengths on a map or real life, construct scale drawings, use speed, distance, time to find unknown values.</p> <p><b>Geometry 4 Plans and Elevations:</b> Identify, name and draw nets of common 3D shapes, understand the terms faces, edges and vertices, use plans and elevations to analyse 3d shapes, use and carry out isometric drawings, understand and draw plans and elevations of a shape made from simple solids.</p> <p><b>Geometry 5 Angles and Polygons:</b> Know angle sums for: at a point; on a straight line; in a triangle; in a quadrilateral and use to calculate missing angles, recognise vertically opposite angle and know they are equal, identify parallel and perpendicular lines, understand and use angle properties in parallel lines, know formula for interior and exterior angles of polygons and that interior + exterior = <math>180^\circ</math>, know the definition of a circle and identify, name or draw on its parts; centre, radius, chord, diameter, circumference, tangent, arc, sector and segment, know points on a compass, use bearings (three figure) to specify direction, use bearings to mark given points on a diagram.</p> <p><b>Geometry 6 Volume and Surface Area:</b> Calculate the surface area and volume of shapes made from cubes and cuboids, calculate the surface area of nets made up of rectangles and triangles, calculate the volume and surface area of prisms and cylinders. Solve problems involving the volumes and surface areas of pyramids, cones and spheres.</p> <p><b>Geometry 7 Transformations and Vectors</b> Identify the order of rotational symmetry of shapes on a Cartesian grid. Draw or complete a diagram with rotational symmetry, including on a Cartesian grid. Transform 2-D shapes by:(i)enlarging -by a positive integer scale factor with a centre specified. Understand and use the language and notation associated with specifying (i)enlargement -centre and scale factor. Describe transformations of 2-D shapes by:(i)reflection -finding the equation of a line(ii)rotation - finding the centre of rotation and measure the angle of rotation using right angles (iii)translation -using of a clear explanation of direction and distance(iv)enlargement -finding the scale factor. Distinguish properties preserved by transformations:(i)Recognise that translations, rotations and reflections preserve length and angle, and map objects on to congruent images(ii)Recognise that enlargement preserves angle but not length and understand the implications on the perimeter</p>	<p><b>Geometry 1</b> G20a, G20b, G20c, G20D, G22a, G22b</p> <p><b>Geometry 2</b> G15, R6</p> <p><b>Geometry 4</b> G12a, G12b, G12c</p> <p><b>Geometry 5</b> G13, G17, G18, G19</p> <p><b>Geometry 6</b> G21a, G21b, G25a, G25b, G32, G33</p> <p><b>Geometry 7</b> G4b, G5, G7, G28, R10</p>

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<p>Describe transformations of 2-D shapes by:(i)rotation -finding the centre of rotation and measure the angle of rotation using simple fractions of a turn or degrees (ii)translating -finding the vector, using and understanding column vector notation(iii)enlargement -finding the centre of enlargement and identifying the scale factor as the ratio of the lengths of two corresponding sides or line segments. Distinguish properties preserved by transformations:(i)Use congruence to show that translations, rotations and reflections preserve length and angle so that any figure is congruent under any of these transformations. Describe and transform 2-D shapes by combinations of translations, rotations, reflections and enlargements</p>	
<p><b>Probability:</b> Know that <math>P(a) = 1 - P(a)</math>, know that probabilities of mutually exclusive outcomes sum to 1, understand the difference between experimental and theoretical probabilities, recognise that more trials give more reliability, use language of probability understanding notation like <math>P(A)</math>, <math>P(A')</math>, <math>P(A \cup B)</math>, complete and interpret Venn diagrams, complete frequency trees and use them to find probabilities, complete tree diagrams to find probabilities for two or more events.</p>	<p><b>Probability</b> P1, P2a, P2b, P6, P7</p>
<p><b>Number 1 Written Calculation Methods:</b> Complete mental calculations using multiplication, division, addition and subtraction, use written methods to add, subtract, multiply and divide given values including decimals, use a calculators function keys to solve harder problems, understand and apply the rules of BIDMAS, understand the effects of multiplying and dividing by numbers between 0 and 1, recognise and use reciprocals, know that any number multiplied by its reciprocal is 1 and that zero has no reciprocal.</p> <p><b>Number 2 Decimals and Place Value:</b> write numbers in words and from words (including decimals), multiply and divide integers and decimals by powers of 10 and explain the effect, round positive numbers to any power of 10, round decimals to the nearest whole number or a given decimal place, round to any given number of significant figures and use this to approximate answers to problems, identify upper and lower bounds of numbers.</p> <p><b>Number 3 HCF, LCM and Types of Number:</b> Use and identify multiples, factors, primes (less than 100), HCF and LCM, calculate using positive and negative numbers, recall square and cube numbers (also knowing the corresponding roots), write a number as a product of prime factors (including index form), use product of prime factors to: find HCF and LCM; work out the root of a number, convert between ordinary and standard index form, calculate with standard index form.</p> <p><b>Number 4 Fractions, Decimals and Percentages:</b> <u>Fractions:</u> Simplify fractions by cancelling common factors, order fractions using equivalent fractions or by converting them to decimals, convert between mixed numbers and improper fractions, add, subtract, multiply and divide fractions and mixed numbers, calculate fractions of quantities. <u>Decimals:</u> Convert terminating decimals to fractions e.g. <math>0.23 = \frac{23}{100}</math>, recognise recurring decimals as fractions. <u>Percentages:</u> Calculate simple percentages and use percentages to compare, interpret percentage as 'so many hundredths of', express one number as a percentage of another, percentage increase and decrease (including using multipliers), reverse a percentage change, solve simple interest problems. <u>FDPS:</u> Recognise the equivalence of percentages, fractions and decimals, use division to convert a fraction to a decimal, use equivalence of fractions, decimals and percentages to compare amounts, distinguish between fractions with denominators with prime factors 2 or 5 (terminating decimals), and other fractions (recurring decimals).</p>	<p><b>Number 1</b> N20, N40a, N40b, N44</p> <p><b>Number 2</b> N25, N27a, N27b, N38</p> <p><b>Number 3</b> N30a, N30b, N31a, N31b, N45a, N45b, N46</p> <p><b>Number 4</b> N32, N33, N34, N35, N37a, N38, N39a, N39b</p>
<p><b>Statistics 1 - Processing, Representing and Interpreting data</b> Design, use or complete a two-way table from given information. Choose an appropriate measure to be the 'average', according to the nature of the data. Use and interpret scatter graphs and recognise correlation: Recognise and name positive, negative or no correlation as types of correlation. Recognise and name strong, moderate or weak correlation as strengths of correlation. Apply statistics to describe a population. Use measures of tendency (median, mean, mode and modal class) and measures of dispersion (range, including quartiles and interquartile) to describe a population. Use statistical diagrams to describe a population</p> <p>Calculate the following statistics from a grouped frequency distribution: an estimate of the mean, knowing why it is an estimate, find the interval containing the median for a grouped frequency distribution. Interpret distributions of data: Identify outliers. Find patterns in data that may lead to a conclusion being drawn. Look for unusual data values such as a value that does not fit an otherwise good correlation</p>	<p><b>Statistics 1</b> P4, P5, S4, S5, S6, S7, S8, S10a, S10b</p>
<p><b>Ratio, Proportion and Rates of Change</b> Compare two ratios. Interpret and use ratio in a range of contexts: to solve geometrical (similar shapes, scale drawings, measures), statistical and number problems: to solve worded problems using informal strategies or using the unitary method of solution: to solve best-buy problems using informal strategies or using the unitary method of solution. Represent a ratio of two quantities (in direct proportion) as a linear relationship graphically. Relate ratios to fractions and use linear equations to solve problems. Use direct proportion to solve geometrical problems</p> <p>Calculate an unknown quantity from quantities that vary in direct proportion or inverse proportion. Set up and use equations to solve word and other problems involving direct proportion or inverse proportion. Recognise the graphs that represent direct and inverse proportion</p>	<p><b>Ratio 1</b> R1a, R1b, R3, R4, R5a, R5b, R8, R13</p>