

## 3rd Year Revision List – Set 1

### Number

- **Number properties;** including multiples, factors, primes, squares, cubes, roots, prime factor decomposition, highest common factor and lowest common multiple.
- **Percentages,** including percentage of a quantity, percentage increase/decrease, percentage multipliers, reverse percentages, percentage profit & loss, and compound interest.
- **Ratio and proportion;** including equivalent ratios, sharing in a ratio, the unitary method and solving proportionality problems.
- **Rounding and approximating;** including rounding to decimal places, rounding to significant figures and estimating. Use inequality notation to specify error intervals due to rounding.
- **Multiplication and division;** including long multiplication and division of both integers and decimals, and understanding the effects of multiplying and dividing by numbers between 0 and 1.
- **Negative numbers;** including adding, subtracting, multiplying and dividing negative numbers.
- **Fractions;** including fraction of a quantity, comparing fractions, adding, subtracting, multiplying, dividing fractions and reciprocals.
- **Decimals;** including, adding, subtracting, multiplying, dividing and converting between fractions, decimals and percentages. Converting recurring decimals to fractions.
- **Calculations;** including how to use a calculator to carry out complex calculations.
- **Standard Form;** including writing both large and small numbers in standard form, being able to perform standard form calculations both with and without a calculator.

### Algebra

- **Algebraic expressions;** including collecting like terms and simplifying expressions, expanding single brackets, expanding double brackets, factorising into a single bracket, factorising quadratic expressions and algebraic substitution.
- **Solving equations;** including solving linear equations with unknowns on one side, linear equations with unknowns on both sides, linear equations with brackets, linear equations with fractions, and forming linear equations.
- **Simultaneous equations;** including solving simultaneous equations, graphically, by elimination or substitution.
- **Quadratic equations;** including solving quadratic equations by first factorising the equation.
- **Inequalities;** including understanding inequalities, representing inequalities on a number line and solving linear inequalities.
- **Changing the subject;** including being able to re-arrange formulae where the new subject appears once.
- **Graphs;** including drawing straight line graphs, simple quadratic and cubic graphs, identifying the gradient and intercept of straight line graphs, equations of parallel and perpendicular lines, the equation of the line between two points, and interpreting real life graphs (including rate of change).
- **Trial & Improvement;** including solving equations using Trial & Improvement.
- **Laws of Indices;** including evaluating indices and using the laws of indices for multiplying, dividing indices, raising one power by another, negative indices and fractional indices.

### Shape

- **Angles;** including using basic angle rules, angles on parallel lines, interior and exterior angles.
- **Quadrilaterals & symmetry;** including properties of quadrilaterals, reflective and rotational symmetry.
- **Transforming shapes;** including translations, reflections, rotations and enlargements.
- **Locus and constructions;** including being able to carry out standard compass and ruler constructions and being able to solve locus problems.
- **2D and 3D shapes;** including being able to name the parts of a circle, name the special quadrilaterals and know their properties, and name the key 3D solids.
- **Area and perimeter;** calculating the circumference and area of circles. Calculating the perimeter and area of rectangles, parallelograms, triangles, trapeziums and compound shapes. Calculating the length of arcs and area of sectors.

- **Volume, surface area & density;** including calculating the volume, surface area and density of prisms. Calculate pressure.
- **Pythagoras Theorem;** including understanding and using Pythagoras Theorem.
- **Line segments;** including finding the mid-point of a line and the length of a line.
- **Similarity;** including identifying similar shapes and finding the lengths of unknown sides for similar shapes.
- **Speed, distance, time;** including calculating using speed, distance, time and drawing and interpreting distance/time and velocity/time graphs.
- **Trigonometry;** using trigonometry to find the lengths of unknown sides or the size of unknown angles in right-angled triangles. Know exact trig values for  $0^\circ$ ,  $30^\circ$ ,  $45^\circ$ ,  $60^\circ$ ,  $90^\circ$ .

### **Handling Data**

- **Collecting data;** including surveys and sampling.
- **Representing data;** including drawing bar charts, line graphs, frequency polygons, pie charts and scatter graphs.
- **Recording data;** including frequency tables, stem & leaf diagrams
- **Calculating data;** including mean, mode, median and range, and estimating the mean, mode and median from a grouped frequency table.
- **Probability;** including the probability scale, the probability of equally likely outcomes, mutually exclusive events and expected probability.