

## **Mathematics learning tips- How to achieve the higher grades:**

### **Number**

- Solve problems with fractions, decimals and percentages, knowing common equivalences.
- Complete a multi-step word problem, breaking the question down into sections.
- Use ratio to solve problems, including ‘best buy’ and speed, distance, time problems.

### **Algebra**

- Expand brackets and factorise algebraic expressions.
- Use algebra to set up equations for given contexts and solve these equations.
- Solve equations with an ‘unknown’ on both sides.
- Understand the index laws.
- Understand sequences and how to find the general (nth) term rule for an arithmetic sequence.
- Complete a table of values for a linear and for a quadratic graph. Remember that the square of a negative number is always **positive**.

### **Shape**

- Calculate areas and perimeters of triangles, quadrilaterals, and other shapes made from triangles and rectangles.
- Use Pythagoras’ Theorem to find the missing side length of a right-angled triangle.
- Use angle rules to find missing angles. Know key vocabulary, for example, corresponding angles, alternate angles.
- Work out exterior and interior angles in regular polygons. Know the angle sum of a polygon and find a missing angle in an irregular polygon. Represent and interpret data from tables and diagrams. Describe transformations fully and carry out transformations e.g reflection in the line  $y = 1$ ; rotation,  $90^\circ$  clockwise about  $(0, 1)$ .

### **Data Handling and probability**

- Calculate probabilities and expected outcomes.
- Use mean, median, mode and range.
- Find the mean from a table.