YEAR 11

Autumn Term

Gradients & Lines

- Equations of lines parallel to the axis   R
- Plot straight line graphs   R
- Interpret $y = mx + c$ R
- Find the equation of a straight line from a graph
- Equation of a straight-line graph given one point and gradient
- Equation of a straight-line graph given two points
- Determine whether a point is on a line
- Solve linear simultaneous equations graphically   R
- Recognise when straight lines are perpendicular   H
- Find the equations of perpendicular lines   H

H denotes Higher Tier GCSE content
R denotes Review step

Non-linear Graphs

- Plot and read from quadratic graphs
- Plot and read from cubic graphs
- Plot and read from reciprocal graphs
- Recognise graph shapes
- Identify and interpret roots and intercepts of quadratics
- Understand and use exponential graphs   H
- Find and use the equation of a circle centre (O, O)   H
- Find the equation of the tangent to any curve   H

Using Graphs

- Reflect shapes in given lines   R
- Construct and interpret conversion graphs   R
- Construct and interpret other real-life straight line graphs   R
- Interpret distance/time graphs

Using Graphs

- Construct distance/time graphs
- Construct and interpret speed/time graphs
- Construct and interpret piece-wise graphs
- Recognise and interpret graphs that illustrate direct and inverse proportion
- Find approximate solutions to equations using graphs
- Estimate the area under a curve **H**

H denotes Higher Tier GCSE content
R denotes Review step

Expanding and Factorising

- Expand and factorise with a single bracket **R**
- Expand binomials **R**
- Factorise quadratic expressions
- Factorise complex quadratic expressions **H**
- Solve equations equal to 0
- Solve quadratic equations by factorisation
- Solve complex quadratic expressions by factorisation **H**
- Complete the square **H**
- Solve quadratic equations using the quadratic formula **H**

Changing the Subject

- Solve linear equations **R**
- Solve inequalities **R**
- Form and solve equations and inequalities in the context of shape
- Change the subject of a simple formula **R**
- Change the subject of a known formula

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Changing the Subject

- Change the subject of a complex formula
- Change the subject where the subject appears more than once H
- Solve equations by iteration   H

Functions

- Use function machines   R
- Substitute into expressions and formulae   R
- Use function notation
- Work with composite functions   H
- Work with inverse functions   H
- Graphs of quadratic functions
- Solve quadratic inequalities   R H
- Understand and use trigonometric functions   R