Mathematics
Year 10

1. **Linear Relations**
    - Algebraic fractions
    - Solving linear equations
    - Inequalities
    - Graphing straight lines
    - Finding an equation of a line
    - Length and midpoint of a line segment
    - Perpendicular and parallel lines
    - Simultaneous equations – substitution
    - Simultaneous equations – elimination
    - Further applications of simultaneous equations
    - Half planes

2. **Geometry**
    - Geometry review
    - Congruent triangles
    - Investigating parallelograms using congruence
    - Similar figures
    - Proving similar triangles
    - Circles and chord properties
    - Angle properties of circles – theorems 1 and 2
    - Angle properties of circles – theorems 3 and 4
    - Tangents
    - Intersecting chords, secants and tangents

3. **Indices and Surds**
    - Irrational numbers and surds
    - Adding and subtracting surds
    - Multiplying and dividing surds
    - Binomial products
    - Rationalising the denominator
    - Review of index laws
    - Negative indices
    - Scientific notation
    - Rational indices
    - Exponential growth and decay
    - Compound interest
    - Comparing interest
    - Exponential equations

4. **Trigonometry**
- Trigonometric ratios
- Finding angles
- Applications in two dimensions
- Bearings
- Applications in three dimensions
- Obtuse angles and exact values
- The sine rule
- The cosine rule
- Area of a triangle
- The four quadrants
- Graphs of trigonometric functions

5. **Quadratic Equations**
- Expanding expressions
- Factorising expressions
- Factorising trinomials of the form $ax^2 + bx + c$
- Factorising quadratic trinomials
- Factorising by completing the square
- Solving quadratic equations
- Applications of quadratics
- Solving quadratic equations by completing the square
- The quadratic formula

6. **Measurements**
- Review of length
- Pythagoras' theorem
- Area
- Surface area – prisms and cylinders
- Surface area – pyramids and cones
- Volume – prisms and cylinders
- Volume – pyramids and cones
- Spheres
- Limits of accuracy

7. **Parabolas and Graphs**
- Exploring parabolas
- Sketching parabolas with transformations
- Sketching parabolas using factorisation
- Sketching by completing the square
- Sketching using the quadratic formula
- Applications involving parabolas

- Intersection of lines and parabolas
- Graphs of circles
- Graphs of exponentials
- Graphs of hyperbolas
- Further transformations of graphs

8.   Probability
- Review of probability
- Unions and intersections
- The addition rule
- Conditional probability
- Two-step experiments using tables
- Using tree diagrams
- Independent events

9.   Statistics
- Collecting and using data
- Review of statistical graphs
- Summary statistics
- Box plots
- Standard deviation
- Time-series data
- Bivariate data and scatter plots
- Line of best fit by eye
- Linear regression with technology

10.   Logarithms
- Logarithms
- Logarithm laws
- Exponential equations using logarithms

11.   Polynomials

- Concepts of Polynomial equations
- Expanding and Simplifying polynomials
- Division of polynomials
- The remainder and factor theorems
- Solving polynomial equations
- Graphs of polynomials

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