



Cardinal Hume Catholic School

Department of Mathematics



Year 9

Module 1

Pythagoras' Theorem

- Proof
- Calculate hypotenuse
- Calculate shorter side
- Problem solving

Straight line graphs

- Plotting graphs from a table of values ($y=mx+c$ and $ax + by = c$)
- $Y = mx + c$ (identify significance of m and c)
- Find the gradient of a linear graph (given graph)
- Find the equation of a linear graph (given graph)

Probability

- Introduction to Venn diagrams
- Reading/completing Venn diagrams
- Calculating probabilities from Venn diagrams
- Set notation and/or/not
- Conditional probabilities from Venn diagrams
- Drawing Venn diagrams to solve problems

Indices and Standard Form

- Powers of numbers (including powers and negative powers of 10)
- Index Laws (multiply, divide, power of)
- Standard form (converting to and from)
- Ordering numbers in standard form and using a calculator

Module 2

Quadratics

- Expanding double brackets
- Factorising quadratics (include single and double brackets)
- Solve quadratics via factorising
- Plotting quadratic graphs from table of values, recognising roots
- Sketching quadratic graphs

Similarity

- Ratios between/within shapes
- Linear scale factors
- Using linear scale factors to find missing lengths
- Area scale factors (find missing areas and lengths)
- Volume scale factors (find missing volumes, areas and lengths)

Ratio Problems

- Writing/reading ratios with 3 parts
- Combining 2 linked pairs of ratios into a 3-way ratio
- Sharing a quantity into a 3-way ratio
- Ratios without a quantity – problem solving
- Proportional problems (best buys/unitary problems)

Simultaneous Equations

- Find intersection of two linear graphs by plotting
- Practical problems (forming equations from worded problems/diagrams)
- Use representation methods to solve as introduction
- Formal elimination method (no scaling)
- Formal elimination method (scale one)
- Formal elimination method (scale both)

Module 3

Trigonometry

- Similar triangles
- Using sin/cos/tan tables
- Using calculators to find missing sides
- Using calculators to find missing angles
- Functional problems

Percentage Calculations

- Review of using percentage multipliers
- Mixed percentage problems
- Finding percentage change (profit/loss)
- Interest and depreciation
- Repeated percentage change problem solving

Formulae and Mechanics

- Basic changing the subject
- More complex changing the subject
- Substitutions using real life formulae (SDT, DMV, PFA etc)
- Distance-time graphs (including interpreting gradient of lines)
- Velocity-time graphs (including interpreting the gradient and area underneath)

Angles and Bearings

- Interior angles in polygons
- Exterior angles in polygons
- Problem solving
- Drawing and measuring bearings (to scale)
- Bearing using angle facts