

Year 10/10A Mathematics: Semester 1 Overview 2019

Teacher: Kathy Keenan

By the end of Year 10, students recognise the connection between simple and compound interest. They solve problems involving linear equations and inequalities. They make the connections between algebraic and graphical representations of relations. Students solve surface area and volume problems relating to composite solids. They recognise the relationships between parallel and perpendicular lines. Students apply deductive reasoning to proofs and numerical exercises involving plane shapes. They compare data sets by referring to the shapes of the various data displays. They describe bivariate data where the independent variable is time. Students describe statistical relationships between two continuous variables. They evaluate statistical reports.

Students expand binomial expressions and factorise monic quadratic expressions. They find unknown values after substitution into formulas. They perform the four operations with simple algebraic fractions. Students solve simple quadratic equations and pairs of simultaneous equations. They use triangle and angle properties to prove congruence and similarity. Students use trigonometry to calculate unknown angles in right-angled triangles. Students list outcomes for multi-step chance experiments and assign probabilities for these experiments. They calculate quartiles and inter-quartile ranges.

Term	Topic	Assessments
Weeks 1-6	Algebra <ul style="list-style-type: none"> - Revision of indices - Define rational and irrational numbers and perform operations with surds and fractional indices - Expanding brackets and simplifying (review) - Factorising using common factors - Factorising by the difference of two squares - Factorising by completing the square - Factorising monic and non-monic quadratics - Algebraic fractions - Rearranging Formula - Use the definition of a logarithm to establish and apply the laws of logarithms 	<p>*Throughout the semester there are formative and summative assessments that assess the student's level of learning and understanding of the topic being covered</p> <p style="text-align: center;">Algebra Test no calculator or notes. 50 minutes</p>
Weeks 7-11	Pythagoras and Trigonometry <ul style="list-style-type: none"> - Pythagoras (review) - The trigonometric ratios - Finding lengths - Finding angles - Angles of elevation and depression - Bearings - Mixed two-dimensional problems - Mixed three-dimensional Problems - Sine Rule - Cosine Rule - Area of triangle = $\frac{1}{2}ab\sin C$ 	<p style="text-align: center;">Trigonometry Investigation Maximum of 6 single-sided A4 pages. Mathematical Investigation report format.</p> <p style="text-align: center;">Trigonometry Test Calculator permitted One side of an A4 page of handwritten notes permitted. 50 minutes</p>

Term 2 Week 1	Measurement <ul style="list-style-type: none"> - Unit conversions and perimeter (review) - Area of basic shapes (review) 	
Week 2	Careers Week	
Week 3	Work Experience	
Weeks 4-6	Measurement cont... <ul style="list-style-type: none"> - Surface area of prisms and cylinders - Volume of prisms and cylinders - Surface area of tapered solids and spheres - Volume of tapered solids and spheres - Surface area and volume of composite solids - Applications of volume 	Measurement Investigation Maximum of 6 single-sided A4 pages. Mathematical Investigation report format. Measurement Test Calculator permitted One side of an A4 page of handwritten notes permitted. 50 minutes
Weeks 7-10	Linear Relationships <ul style="list-style-type: none"> - Linear Equations - Gradient/Slope - Graphing linear equations - Parallel and Perpendicular Lines - Solving Inequalities - Solving Linear Simultaneous Equations 	Linear equations Test Calculator permitted One side of an A4 page of handwritten notes permitted. 50 minutes

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