

Year 10/10A Mathematics: Semester 2 Overview 2019

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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 3	Topic	Assessments
Week 1	Measurement <ul style="list-style-type: none"> - Test revision 	<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>Measurement Test Calculator permitted One side of an A4 page of handwritten notes permitted. 80 minutes</p>
2-3	Linear Relationships <ul style="list-style-type: none"> - Linear Equations ($y = mx + c$) - Gradient/Slope - Graphing linear equations - Parallel and Perpendicular Lines 	
Weeks 4-6	Solving Linear Equations, Inequalities and Simultaneous Equations <ul style="list-style-type: none"> - Linear Equation problems - Linear Inequalities - Solving Linear Inequalities - Solving simultaneous equations graphically - Solving simultaneous equations by Substitution - Solving simultaneous equations by elimination - Problem Solving 	<p>Solving Linear Equations, Inequalities and Simultaneous Equations Test Calculator permitted One side of an A4 page of handwritten notes permitted. 80 minutes</p>

<p>Weeks 7-10</p>	<p>Polynomials, Exponentials and Logarithms</p> <ul style="list-style-type: none"> - Identify and describe key features of these functions - Graph/Sketch these functions - Growth and Decay - Logarithmic Laws 	<p>Investigation – Features and applications of various types of functions</p> <p>Maximum of 8 single-sided A4 pages. Mathematical Investigation report format.</p>
<p>Term 4 Weeks 1-2</p>	<p>Geometric Reasoning</p> <ul style="list-style-type: none"> - Formulate proofs involving congruent triangles and angle properties - Apply logical reasoning, including the use of congruence and similarity, to proofs and numerical exercises involving plane shapes 	<p>Geometric Reasoning Test</p> <p>Calculator permitted One side of an A4 page of handwritten notes permitted. 40 minutes</p>
<p>Weeks 3-4</p>	<p>Statistics</p> <ul style="list-style-type: none"> - Determine quartiles and interquartile range - Construct and interpret box plots and use them to compare data sets - Compare shapes of box plots to corresponding histograms and dot plots - Use scatter plots to investigate and comment on relationships between two numerical variables - Investigate and describe bivariate numerical data where the independent variable is time - Evaluate statistical reports in the media and other places by linking claims to displays, statistics and representative data 	
<p>Weeks 5-6</p>	<p>Probability</p> <ul style="list-style-type: none"> - Describe the results of two- and three-step chance experiments, both with and without replacements, assign probabilities to outcomes and determine probabilities of events. Investigate the concept of independence - Use the language of 'if ... then', 'given', 'of', 'knowing that' to investigate conditional statements and identify common mistakes in interpreting such language 	<p>Statistics and Probability Test</p> <p>Calculator permitted One side of an A4 page of handwritten notes permitted. 80 minutes</p>
<p>Weeks 7-8</p>	<p>Revision and End of Year Exam</p> <ul style="list-style-type: none"> - All topics 	<p>Exam</p> <p>Calculator permitted Two A4 pages of handwritten notes permitted 100 minutes</p>