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Year 11 Topic Outline [2019/20]

Topic	Outline of content	Revision Guide	Workbook	MathsWatch
Linear Graphs	Straight line graphs – y = mx + c (recap)	Page 43 – 47	Page 41 – 45	96, 159a
	Find the equation of a line with the gradient and one point	Page 44		159b
	Equations of parallel and perpendicular lines	Page 47		159b, 208
	Find the equation of a line through two points	Page 44		159b
Probability Venn Diagrams and Frequency Diagrams	Basic probability and sample space diagrams (recap)	Page 106 – 109	Page 107 – 110	14, 59, 126
	Tree diagrams – with and without replacement	Page 111 – 112	Page 112 – 113	151, 175
	Conditional probability			
	And/or rules for probability	Page 110	Page 111	-
	Venn diagrams – construct and use to solve problems	Page 114	Page 114 – 115	127a, 127b, 185
	Frequency diagrams – construct and use to solve problems	Page 109	Page 110 (Q6)	65a, 65b
Further Quadratics	Factorise quadratics (recap)	Page 19, 25 – 26	Page 25	157, 192
	Solve quadratic equations by factorising (recap)			
	Plot quadratic graphs (recap)	Page 48	Page 46	98
	Completing the square	Page 28	Page 28	209a
	Solve quadratic equations using the quadratic formula	Page 27	Page 26 – 27	191
	Solve quadratic equations in complete the square form	Page 28	Page 28	209b
	Quadratic graphs – identify turning points and lines of symmetry	See class notes	Page 46	209b, 209c
	Solve equations involving algebraic fractions	Page 21 – 22	Page 21 – 22	210b
Transformations	Transformations of shapes around the coordinate axes – reflection, rotation, translation	Page 80	Page 81 – 82	48 – 50, 182
	Enlargements (including negative and fractional scale factors)	Page 81		148, 181a, 181b
	Invariant points	Page 80		-
Linear and Quadratic Inequalities	Form and solve linear inequalities with one variable – show solution on a number line (recap)	Page 33	Page 33 – 35	138, 139
	Shade inequalities with more than one variable on a graph	Page 35		198
	Solve quadratic inequalities	Page 34		212
Angles and Geometry	Finding missing angles using angle rules (recap)	Page 71 – 73	Page 73 – 74	45, 120 – 121
	Angles in polygons (recap)	Page 74	Page 75	123

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	Circle theorems – application and proofs	Page 76 – 77	Page 77 – 78	183 – 184
Kinematics & Real Life Graphs	Rearranging formulae	Page 23 – 24	Page 23 – 24	136, 190
	Substitution into SUVAT formulae (formulae given in the exam)	See class notes		95
	Problems involving distance-time graphs	Page 55	Page 55	143
	Interpret straight-line gradients as rates of change	Page 54 – 57, 63	Page 54 – 57	107, 143, 199, 216a, 216b
	Calculate or estimate gradients of graphs – link with distance-time graphs, velocity time graphs and financial graphs			
	Use average and instantaneous rate of change in numerical, algebraic and graphical contexts			
	Recognise and interpret graphs that show direct and inverse proportion			
	Calculate or estimate areas under graphs – link with velocity-time graphs			
	Construct graphs in real-life contexts			
Functions	Applying function machines to inputs and outputs (recap)	See class notes	Page 40	36
	Inverse functions			214a, 214b
	Composite functions			215
Further Ratio and Proportion	Ratio – simplify, divide into, problems solving (recap)	Page 59 – 61	Page 58 – 60	38, 106
	Proportion – direct and inverse (recap)	Page 62 – 63	Page 61 – 62	42
	Percentages – amounts, increase, decrease, change, interest (recap)	Page 64 – 66	Page 63 – 67	86 – 87, 108 – 109, 111, 164
Algebraic Graphs	Plot cubic graphs from a table of values	Page 49 – 51	Page 47 – 50	161
	Plot reciprocal graphs from a table of values			
	Plot exponential graphs from a table of values			194
	Use a formula to plot exponential graphs			
	Recognise and sketch the graphs of trig functions – $y = \sin\theta$, $y = \cos\theta$, $y = \tan\theta$			195a, 195b
	Identify and sketch translations and reflections of graphs from a given equation	Page 53	Page 52 – 53	196a, 196b

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Approximate Solutions to Equations	Find approximate solutions to equations using sign-change methods (including decimal search and interval bisection)	Page 36	Page 36	179, 180
Similarity and Congruence	Use similarity to solve problems involving missing side lengths, area and volume	Page 79	Page 80	144, 200
	Prove that two shapes are similar			
	Prove that two shapes are congruent	Page 78	Page 79	12b, 166
Equation of a Circle	Solve simultaneous equations – one linear and one quadratic	Page 52	Page 37	211
	Recognise and use the equation of a circle with a centre at the origin	Page 49	Page 48	197
	Calculate the equation of a line representing a radius or diameter from a point on the circumference of a circle			
	Calculate the equation of a tangent to a circle given a point			
Proof and Identities	Know the difference between an equation and an identity	Page 39 – 40	Page 38 – 39	193
	Show algebraic expressions are equivalent			
	Use algebra to construct proofs and arguments			
Vectors	Represent a 2D vector as a column vector	Page 103 – 104	Page 105 – 106	174, 219
	Draw column vectors on a grid			
	Calculations with vectors – addition, subtraction, multiplying by a scalar value			
	Proofs with vectors			