Revision List for 5th Year HL Maths Summer Exam 2025

Section in	Learning C	Dutcomes	revised
Algebra 1	Can l expa	nd an expression with brackets (x+2)(y-2x)	
	Can I com	plete long division in algebra	
		orise using difference of two squares	
		whest common factor	
	⊙ Th	e Guide Number Method for guadratics	
	o Th	e difference of two cubes	
	🔲 🛛 Can I add	subtract and multiply fractions involving	
	algebra		
	🔲 Can I simp	lify algebra fractions using factorising?	_
	Can use th	ne binomial theorem to expand an	
	expressior	าร	
	Can use Pa	ascals triangle or the Choose function to find	
	the binom	ial theorem coefficients	
	Can I write	e out a specific term of a large binomial	
	expansion	without having to write out the whole	
		Algebraic Indentities to find missing values in	
		sion	
		range a formula so it is in terms of a certain	
	variable?		
	Can I solve	e linear equations involving fractions	
	Can I solve	e simultaneous equations with 2 variables	_
	Can I solve	e simultaneous equations with 3 variables	
Algebra 2		a quadratic equation using the guide	
	number m	hethod to factorise or using the "-h" formula	
	Lknow the	e solution to a guadratic are called the roots	
	and they a	are the points the curve cross the x-axis	
	L I know the	e difference between a positive and negative	
	quadratic	when graphed	
	L I know wh	at the discriminant is and how to calculate	
	it.		
	I know wh	at values the discriminant has when a	
	quadratic	has	

	 Real roots Equal real roots 	
	 No real roots/imaginary roots I can solve problems using the above information I can solve simultaneous equations between a linear 	
	equation and a quadratic	
	I can form a quadratic if I'm given its roots	
	I can add, subtract and multiply surds and I know the rules around these	
	I know what the complex conjugate of a surd is	
	I can divide surds by a real number and I can use the complex conjugate to divide one surd by another surd	
	I can solve equation involving one or two surd terms	
	 I can use the factor theorem to find the solutions to a 	
	cubic equation. Cubic	
	without having to use long division.	
	I know what the graph of a positive cubic and a negative cubic looks like	
	I can use the factor theorem to identify the equation of a graph.	
Coordinate Geometry of	 I can find the length, slope and midpoint of a line I can find the area of a triangle give one point as (0,0) 	
the Line	I can find the area of a triangle when not given one point as (0.0)	
	 I can find the slope of a line given its equation I can find the slope of a parallel line and perpendicular 	
	line to a given line I can divide a line internally given the end points and a	
	ratio I can find the perpendicular distance between a line	
	and a point.	
	 I can use linear relationships to solve problems using graphs. 	

Coordinate Geometry of the Circle	□ I can find the radius and centre of a circle given the equation in the following formats: $x^{2} + y^{2} = r^{2}$ $(x - h)^{2} + (y - k)^{2} = r^{2}$ $x^{2} + y^{2} + 2gx + 2fy + c = 0$ □ I can use the centre and radius of a circle to find the equation in the following formats: $x^{2} + y^{2} = r^{2}$ $(x - h)^{2} + (y - k)^{2} = r^{2}$ $x^{2} + y^{2} + 2gx + 2fy + c = 0$	
	 I can find the equation of a circle when given three points that the circle passes through. I can find the equation of a circle when given the 	
	 equation of a tangent, the point of contact and one other point. I can find the equation of a circle through two given points with its centre on a given line. 	
	 I can find the equation of the tangent to a circle at the point P on the circle. I can find the equation of a tangent to a circle parallel 	
	 or perpendicular to a given line. I can find the equation of the tangent to a circle from a point P not on the circle. I can find the length of a tangent to a circle from a 	
	given point not on the circle. I can find the point of intersection of a line and a 	
	 circle. I can find the length of the intercept a circle makes with the x or y axis. 	
	 I can find the equation of a common chord or common tangent between two circles. I can prove that two circles touch internally or 	
	 externally. I can find the equation of a circle that touches the x or y axis at a given point. 	

Trig 1	 I can convert radians to degrees and vice versa. I can find the length of an arc and the area of a sector 	
	 of a circle. I can use SOH CAH TOA to solve for missing angles and sides in a right angled triangle 	
	 I can use Pythagoras' Theorem to find missing sides in a right angled triangle. 	
	I can use the unit circle and understand the four quadrants.	
	I can find a reference angle and know where the value is positive or negative on the unit circle. I can use the Sine rule to find missing sides and angles	
	 I can use the sine rule to find missing sides and angles on a triangle. I can find the area of a triangle using the sine rule 	
	derivation.I can use the Cosine rule to find missing sides and	
	 angles on a triangle. I can use Pythagoras' Theorem, SOH CAH TOA, the sine rule and cosine rule to solve 3D trig problems. 	
	I can graph trig functions and understand the period, range, domain.	
	 I can find the general solution of trigonometric equations. I can prove the Sine Rule and Cosine Rule. 	
Trig 2	□ I can prove the following Trig Identities $\circ \cos^{2} \theta + \sin^{2} \theta = 1$ $\circ \cos(A - B) = \cos A \cos B - \sin A \sin B$ $\circ \cos(A + B) = \cos A \cos B + \sin A \sin B$ $\circ \cos 2A = \cos^{2} A - \sin^{2} A$ $\circ \sin(A + B) = \sin A \cos B - \cos A \sin B$ $\circ \tan(A + B) = \frac{\tan A + \tan B}{1 - \tan A \tan B}$ $\circ \tan(A - B) = \frac{\tan A - \tan B}{1 + \tan A \tan B}$	
	 I know what sec, cot and cosec are I can use the double angle formulas for cos 2.4. sin 2.4 and tap 2.4 to solve problems and 	
	simplify expressions I can use formulas such as $2 \sin A \cos A = \sin(A + 1)$	
	B) + $sin(A - B)$ to change products to sums & differences and use this to simplify expressions and complete proofs	

	 I can use formulas such as cos A + sin B = 2 sin (A+B)/2 cos (A-B)/2 to change sums & differences to products and use this to simplify expressions and complete proofs I can use inverse trig functions such as sin⁻¹ θ, cos⁻¹ θ, sec⁻¹ θ etc to solve problems 	
Complex		
Numbers	\Box I understand that $i = \sqrt{(-1)}$	
	I can label the real part and the imaginary part	
	of a complex number	
	numbers and show the solutions on an Argand	
	I can find the complex conjugate and	_
	understand its symbol is $\frac{1}{2}$	
	I understand what the modulus is and that its symbol is z	
	I can divide complex numbers by real numbers and by complex numbers	
	 I understand that the multiplying by <i>i</i> equals a 90 degree rotation anticlockwise on an Argand Diagram 	
	I understand that adding a complex number to another complex number acts like a translation on an Argand Diagram	
	 I know the Conjugate Roots Theorem and I can use it to find the roots of an equations such as 	
	$z^{5} + 2z^{2} - 30z^{2} + 13 = 0$ \Box I can convert a from the cartesian form to the	
	Polar form	
	the polar form is related to adding or	
	subtracting of the polar angle and I can show	
	this on an Argand Diagram	
	I can write a complex number in General Polar Form	
	I understand how to use DeMoivre's Theorem to work out high powers of a complex number such as (3 + 2i) ⁶	

	 I can use DeMoives Theorem to find the solutions of an equations such as z³ = 8 I understand that the complex roots of an equation when plotted on an Argand Diagram will form a circular pattern I can use DeMoivre's Theorem to express cos 3 θ in terms of θ 	
Algebra 3	I can solve quadratic inequalities and sketch the solutions	
	 I can solve fraction (rational) inequalities and sketch the solutions on a number line I can sketch a graph of y = 1x+21 	
	I can solve inequalities involving modulus	
	 □ I can prove abstract inequalities such as a² + b² ≥ 2ab □ I can use the rules of indices to simplify expressions involving powers and solve simple equations such as 	
	$16^{x-1} = 2\sqrt{(32)}$ I can use substitution to solve exponential equations	
	 such as 3²+3[*] = 90 I can convert between log and exponent form I can use the rules of logs to simplify log expressions such as log₃4 + log₃6 - log₃2 	
	 I can use the rules of logs including the change of base rule to solve log equations I can use substitution to solve log equations such as: 	
	 4 log_x2 - log₂ (x) - 3 = 0 I can use exponents and logs to solve real life problems 	
	 I understand that log_e3 and ln3 and "the natural log of 3" are different ways of writing the same thing 	
	I understand that when no base number is shown its assumed that base 10 is being used. (log4 means log ₁₀ 4)	

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