

KEVICC Key Stage 4 Curriculum Subject: Mathematics			Key Vocabulary and notation.	
Summer Half-Term				
Term: Year 10 Summer Term – Block Six		Topic: Algebraic Fractions		
What is the essential knowledge from this unit? What do students need to remember and understand?				
	Specification content	Specification notes	Expression	Solution set
A4	Simplify and manipulate algebraic expressions (<u>including those involving surds</u>) by: <ul style="list-style-type: none">collecting like termsmultiplying a single term over a brackettaking out common factors<u>expanding products of two binomials</u><u>factorising quadratic expressions of the form $x^2 + bx + c$ including the difference of two squares</u> simplifying expressions involving sums, products, and powers, including the laws of indices		Simplify	Greater/less
			Term	than (or
	Students should be able to: <ul style="list-style-type: none">understand that algebra can be used to generalise the laws of arithmeticmanipulate an expression by collecting like termswrite expressions to solve problemswrite expressions using squares and cubesfactorise algebraic expressions by taking out common factorsmultiply two linear expressions, such as $(x \pm a)(x \pm b)$ and $(cx \pm a)(dx \pm b)$, for example $(2x + 3)(3x - 4)$multiply a single term over a bracket, for example, $a(b + c) = ab + ac$know the meaning of and be able to simplify, for example $3x - 2 + 4(x + 5)$know the meaning of and be able to factorise, for example $3x^2y - 9y$ or $4x^2 + 6xy$factorise quadratic expressions using the sum and product method, or by inspection (FOIL)factorise quadratics of the form $x^2 + bx + c$factorise expressions written as the difference of two squares of the form $x^2 - a^2$use the index laws for multiplication and division of integer powers.simplify algebraic expressions, for example by cancelling common factors in fractions or using index laws.		Substitute	equal)
			Coefficient	Inequality
	A4h Simplify and manipulate algebraic expressions (<u>including those involving surds</u>) by: <ul style="list-style-type: none">collecting like termsmultiplying a single term over a brackettaking out common factors<u>expanding products of two binomials</u><u>factorising quadratic expressions of the form $x^2 + bx + c$ including the difference of two squares</u>simplifying expressions involving sums, products, and powers, including the laws of indices		Equivalent	Form
			Positive	Balance
	Students should be able to: <ul style="list-style-type: none">multiply two or more binomial expressionsfactorise quadratic expressions of the form $ax^2 + bx + c$simplify by factorising and cancelling expressions of the form $\frac{ax^2+bx+c}{dx^2+ex+f}$		Negative	Formula
			Directed	Variable
			Substitute	Subject
			Solve	Factor
			Simplify	Identities
			Expand	Terms
			Multiply out	Expanding
			Bracket	products
			Identity	Surds
			Product	Quadratics
			Factor	$x^2 + bx + c$
			Factorise	$(x \pm a)(x \pm b)$
			Factorise	$ax^2 + bx + c$
			fully	$(cx \pm a)(dx \pm b)$
			Common	Fraction
			Common	Simplify
			factor	Denominator
			Make the	Numerator
			subject of	Add
			Unlike terms	Subtract
			Binomial	Multiply
			Simplify	Divide
			Solve	Part
			Equation	Simplest form
			Unknown	Change the
			Solution	subject
			FOIL	Square
			Side	Square root
			Form	Square both
			Unknown	sides
			Check	Multiply
			Inequality	through by . . .
			Satisfy	Divide through
				by . . .
			Mathematical questioning should be designed to unpick the structure of the maths and deepen the student's understanding. When students talk about mathematical concepts, they should develop the vital mathematical language that helps them explain their ideas fully.	
			Students are expected and encouraged to use terminology during all discussions, verbal feedback and in written content.	
What prior learning supports understanding of this content?			How does this content link to future learning?	
<ul style="list-style-type: none">Simplify and manipulate algebraic expressions (including those involving surds) by:<ul style="list-style-type: none">Collecting like terms.Multiplying a single term over a bracket.Taking out common factors.Expanding products of two binomials.Factorising quadratic expressions of the form $x^2 + bx + c$ including the difference of two squares.Simplifying expressions involving sums, products, and powers, including the laws of indices.			<ul style="list-style-type: none">Know the difference between an equation and an identity; argue mathematically to show algebraic expressions are equivalent, and use algebra to support and construct arguments and proofs.Where appropriate, interpret simple expressions as functions with inputs and outputs; interpret the reverse process as the 'inverse function'; interpret the succession of two functions as a 'composite function'.Understand and use function notation: $f(x)$, $fg(x)$, $f^{-1}(x)$ is expected at higher tier.	

<p>Reading: <i>Where in the unit are students supported to read complex academic text?</i></p> <ul style="list-style-type: none"> • Reading and understanding mathematical questions and problems' – teacher input. • Decoding complex examination questions - explain what they are asking the student to do' – teacher input. • Following instructions to solve problems - break down the tasks – teacher input. • Recognising terminology, numbers, and symbols. 	<p>Writing: <i>Independent writing tasks and how they are structured</i></p> <ul style="list-style-type: none"> • Using the correct subject specific terminology for numbers and symbols – examination papers, class books. • Responding to questions that ask for an explanation or a reason – examination papers, class books. • Self-evaluation, reviewing, reflecting and analysis of own work – class books, personalised learning checklists and analysis. • Creating notes that can be used later for revision purposes - class books, revision cards, mind maps etc.
<p>Key assessments:</p> <p>How will do students review the information learned?</p> <p>End of block assessments.</p> <p>AQA end of block assessments provide a quick progress check at the end of each block of learning to make sure students have understood the content being covered. These are available for both foundation and higher tiers.</p> <p>End of term/year assessments and mock examinations.</p> <p>End of term assessments assessing the students' progress towards targets and provide diagnostic information to modify future teaching.</p> <p>End of year 9 and 10 examinations assessing the students' progress towards targets and provide diagnostic information to modify future teaching.</p> <p>Two mock examinations seasons take place during year 11 using previous years AQA 8300 examination papers. Students to experience the full suite of papers at both Foundation and higher tiers using Non-calculator and Calculator requirements.</p> <p>All examinations will explore the three examination papers at both foundation and higher tiers using non-calculator and calculator requirements.</p> <p>How will feedback be seen?</p> <p>Marked end of block, term assessments and mock examinations.</p> <p>Personalised learning checklists for all assessments identifying strengths and areas of development.</p> <p>Written teacher feedback and marking in compliance with faculty and College Marking Policies. Student responses to marking. Students self-mark using purple pen. Verbal feedback given every lesson from teacher and peers as appropriate. Teacher and student self-assessment of presentation of class books will be completed to ensure written work is of high standard and students are achieving their potential.</p>	