Year 10 Maths Learning Journey

Summer Term 5

Expressions: Manipulating Expressions

Core knowledge	Reference number
Simplify algebraic expressions (R) "True or false – "When you add/subtract like terms, you only need to add/subtract their coefficients?""	WORKSHEET
Use identities "What's the difference between an identity and an equation?"	WORKSHEET
Add and subtract simple algebraic fractions (H) "How do you find the lowest common multiple of two numbers? How do you find the lowest common multiple of two expressions?"	WORKSHEET
Add and subtract complex algebraic fractions (H) "When are brackets important when finding the lowest common denominator of a set of algebraic fractions?"	WORKSHEET
Multiply and divide simple algebraic fractions (H) "If you multiply a fraction by an integer, does the numerator or denominator change?"	WORKSHEET
Multiply and divide complex algebraic fractions (H) "What does it mean to 'cancel' when multiplying and dividing fractions?"	WORKSHEET
Form and solve equations and inequalities with fractions "How can you tell if a number line represents the answer to a strict inequality?"	WORKSHEET
Solve equations with algebraic fractions (H) "When multiplying an equation by an integer, why do you need to multiply every term"	WORKSHEET
Represent numbers algebraically "What can you say about the product of an even number and any other number?"	WORKSHEET
Algebraic arguments and proof "What's the difference between a demonstration and a proof?"	WORKSHEET

Learning Checkpoints

LC Title	Completed	Dirt
Manipulating Expressions		

Key Vocabulary

Cancel: when the numerator and denominator are both divided by their highest common factor the fraction is said to have been cancelled down to give the equivalent fraction in its lowest terms

Coefficient: Often used for the numerical coefficient. More generally, a factor of an

Counter-example: Where a hypothesis or general statement is offered, an example that clearly disproves it.

Denominator: In the notation of common fractions, the number written below the line

Difference: In mathematics (as distinct from its everyday meaning), difference means the numerical difference between two numbers or sets of objects and is found by comparing the quantity of one set of objects with another.

Equation: A mathematical statement showing that two expressions are equal.

Equivalent: equal in value, amount, function, meaning, etc.

Even: An integer that is divisible by 2.

Example: If an object has all the properties, it is an example of the definition

Expression: algebraic expression consists of unknown variables, numbers and arithmetic operators.

Factor: When a number, or polynomial in algebra, can be expressed as the product of two numbers or polynomials, these are factors of the first.

Factorise: To express a number or a polynomial as the product of its factors

Identity: Identities are sometimes indicated by the triple bar symbol ≡ instead of =, the equals sign. ... Formally, an identity is a universally quantified equality.

Inequality: When one number, or quantity, is not equal to another.

Integer: Any of the positive or negative whole numbers and zero. Example: 2, -1,

Justify: A triangle in which two sides have the same length and consequently two angles are equal.

Lowest Common Multiple (LCM): the common multiple of two of more numbers which has the least value

Multiple: For any integers a and b, a is a multiple of b if a third integer c exists so that a = bc

Numerator: in the notation of common fractions, the number written on the top – the dividend (the part that is divided).

Odd: An integer that has a remainder of 1 when divided by 2.

Power/index/exponent: a number positioned above and to the right of another (base). Can be negative, zero or fractional

Product: The result of multiplying one number by another.

Prove: To formulate a chain of reasoning that establishes in conclusion the truth of a proposition.

Quadratic: Describing a expression of the form $ax^2 + bx + c$ where a, b and c are real numbers

Quotient: The result of a division.

Reciprocal: The multiplicative inverse of any non-zero number

Show: To show is to use numbers to demonstrate a certain property

Simplify: Reduce to its simplest form.

Solution: A value or values which, when substituted for a variable in an equation, make the equation true

Solution set: the set of all the solutions of an equation or condition.

Solve: To solve something is to find a solution

Strict: the property of excluding equality and equivalence and often occurs in the context of inequality and monotonic functions.

Sum: The result of one or more additions

Term: either a single number or variable, or numbers and variables multiplied together.

Variable: A quantity that can take on a range of values, often denoted by a letter, x, y, z, t,