

A2 Solving Equations and Inequalities

Knowledge Organiser

Key Word	Definition
Variable	A variable (usually denoted by a lowercase letter or a symbol) is a quantity which can take on different values.
Term	Either a single number or variable, or numbers and variables multiplied together.
Expression	A mathematical phrase which can contain numbers, operators, and variables.
Coefficient	A constant by which an algebraic term is multiplied. Appears at the front of the term.
Like term	Terms with the same variable raised to the same index.
Substitute	Replacing variables with numbers to evaluate, solve or simplify expressions and equations.
Expand	Multiplying out the bracket(s).
Factorise	The reverse process of expanding brackets. The process of finding the factors of a given number or expression, such that multiplying them results in the same number or expression.
Equations	A statement that an expression is equal to another value, using the 'equals' sign. For example, $2x + 3 = 8$
Solving equations	Finding the mathematical value of the letters that makes the equation true.
Integer solutions	When the answers to equations are whole numbers.
Non-integer solutions	When the answers to equations are not whole numbers.
One-step equations	Equations that can be solved in a single step.
Two-step equations	Equations that take two steps in order to be solved.
Isolate the variable/unknown	Means to manipulate the equation so that the variable (e.g. x) is left on its own.
Inverse operation	The correct mathematical word for opposite operations that 'undo' each other.

A2 Solving Equations and Inequalities

Knowledge Organiser Quiz

Question	Answer
A variable (usually denoted by a lower case letter or a symbol) is a quantity which can take on _____ values.	
A term is either a single number or variable, or _____ and _____ multiplied together.	
An _____ is a mathematical phrase which can contain numbers, operators, and variables.	
A coefficient is a constant by which an _____ is multiplied. Appears at the front of the term.	
Like terms are terms with the same _____ raised to the same _____.	
To substitute means to _____ variables with numbers to evaluate, solve or simplify expressions and equations.	
Expand means _____ out the bracket(s).	
Factorising is the _____ process of expanding brackets. The process of finding the factors of a given number or expression, such that multiplying them results in the _____ number or expression.	
An _____ is a statement that an expression is equal to another value, using the 'equals' sign. For example, $2x + 3 = 8$	
Solving an equation means finding the mathematical _____ of the letters that makes the equation true.	
An integer solution means the answer to the equation is a _____.	
A non - _____ solution means the answer to the equation is not a whole number.	
One step equations are equations that can be solved in a _____ step.	
Two-step equations are equations that require two steps to be _____.	
Isolating the variable means manipulating the equation so that the variable is left on its _____.	
An inverse operation is the correct mathematical word for opposite operations that '_____' each other.	

P1 Proportion, Ratio and Scale

Knowledge Organiser

Key Word	Definition
Multiplication	An arithmetical operation, defined initially in terms of repeated addition.
Division	The arithmetical process of dividing one number into another number.
Proportion	A mathematical comparison between two numbers. The relationship between different things or parts with respect to comparative size.
Direct Proportion	As one amount increases, another amount increases at the same rate.
Inverse Proportion	One amount decreases at the same rate that the other increases.
Multiplier	A quantity by which a given number is to be multiplied.
Ratio	A statement of how two numbers compare.
Simplify (Ratio)	To simplify a ratio, divide all parts of the ratio by their highest common factor.
Whole	The whole is the sum of all parts.
Part	A section of a whole.
Equal Parts	All parts in the same proportion, or a whole shared equally.
Scale	The comparison of something drawn to its actual size.

P1 Proportion, Ratio and Scale

Knowledge Organiser Quiz

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Multiplication is an arithmetical operation, defined initially in terms of repeated _____.	
Division is the arithmetical process of _____ one number _____ another number.	
Proportion is a mathematical comparison between two numbers. The _____ between different things or parts with respect to comparative size.	
Two things are directly proportional if as one amount increases, another amount _____ at the same _____.	
Two things are inversely proportional if as one amount decreases, another amount _____ at the same _____.	
A _____ is a quantity by which a given number is to be multiplied.	
A _____ is a statement of how two numbers compare.	
To simplify a ratio , divide all parts of the ratio by their _____ .	
The _____ is the sum of all parts.	
A _____ is a section of a whole.	
Equal parts means all parts are in the same _____, or a whole shared _____.	
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N8 Multiplication and Division of Fractions

Knowledge Organiser

Key Word	Definition
Fraction	A fraction is part of a whole.
Equivalent Fractions	Equivalent fractions are different fractions that represent the same quantity or value. While the numbers may look different, they express the same part of a whole.
Numerator	The numerator is the top number in a fraction. It represents the number of parts you have or are considering.
Denominator	The denominator is the bottom number in a fraction. It represents the number of equal parts into which the unit is divided.
Proper Fraction	A fraction where the numerator is of smaller magnitude than the denominator.
Improper Fraction	A fraction where the numerator is of an equal or larger magnitude than the denominator.
Mixed Number	A number made up of an integer and fractional part.
Reciprocal	The reciprocal of a number is the number you would have to multiply it by to get the answer 1.

N8 Multiplication and Division of Fractions

Knowledge Organiser Quiz

Question	Answer
A fraction is _____ of a _____.	
Equivalent fractions are different fractions that represent the same _____ or value. While the numbers may look different, they express the same _____ of a whole.	
The numerator is the _____ in a fraction. It represents the number of parts you have or are considering.	
The denominator is the _____ in a fraction. It represents the number of equal parts into which the unit is divided.	
A proper fraction is a fraction where the _____ is of smaller magnitude than the _____.	
An improper fraction is a fraction where the _____ is of an _____ or larger magnitude than the _____.	
A mixed number is a number made up of an _____ and _____ part.	
The reciprocal of a number is the number you would have to _____ it by to get the answer _____.	