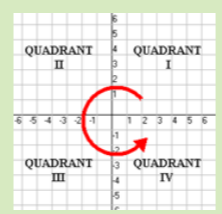


Maths – Reasoning with Algebra

Equations and Inequalities

Equation	This is a statement that indicates two things are equal , it contains expressions on both sides of the equal sign. e.g. $5 = 2x + 1$						
Solve	Finding the value of the unknown e.g. solve $x + 5 = 8$ answer $x = 3$						
Inverse Operations	Use inverse operations to solve equations. e.g. the inverse of addition is subtraction; the inverse of multiplication is division.						
Inequality	This is a statement that has solutions of multiple values. We use the following symbols: <table style="display: inline-table; vertical-align: middle;"> <tr> <td>\neq not equal</td> <td>\neq not equal</td> </tr> <tr> <td>$<$ less than</td> <td>$<$ less than</td> </tr> <tr> <td>$>$ more than</td> <td>$>$ more than</td> </tr> </table>	\neq not equal	\neq not equal	$<$ less than	$<$ less than	$>$ more than	$>$ more than
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Formula	A rule or relationship that is written with mathematical symbols e.g. $f = ma$ The plural of formula is formulae .						
Subject of a formula	The single variable that is equal to everything else. The example above has f as the subject.						
Rearranging Formulae	We can change the subject of a formula by rearranging it. This is done using inverse operations.						
Substitute	This is where we replace a letter with a number.						
Evaluate	This means to calculate the value of something.						

Graphs

Cartesian co-ordinates	These use an ordered pair of values (x,y) to define the position of a point.
Quadrants	The four regions separated by the x and y axis. 
x - coordinate	This is the first number in a coordinate and is the horizontal value.
y - coordinate	This is the second number in a coordinate and is the vertical value.
Origin	This is the name given to the coordinate (0,0).
Horizontal lines	These lines go in a left-right direction. Their equations are in the form $y=n$
Vertical lines	These lines go in an up-down direction. Their equations are in the form $x=n$
Vertical and horizontal lines	These lines are perpendicular to each other.
Linear graph	A graph that produces a continuous straight line.
Non-linear graph	A graph that does not produce a continuous straight line. $y = x^2$ is an example of a non-linear graph.
Equation of a straight line graph	Linear graphs are often written as equations in the form $y = mx + c$ where m is the gradient and c is the y intercept.
y-intercept	This is where a line crosses the y – axis.
Gradient	This is the steepness of a line. Lines are parallel if they have the same gradient .
Ascending	A linear sequences that is ascending has a positive gradient when plotted.
Descending	A linear sequences that is descending has a negative gradient when plotted.

Types of numbers

Factors	They are the numbers that divide into another number without leaving any remainders. e.g. factors of 24 are 1, 2, 3, 4, 6, 8, 12, 24
Highest common factor (HCF)	This is the greatest number that is a factor of two or more numbers.
Multiples	These are found by multiplying a given number by different integers. e.g. the multiples of 4 are 4, 8, 12, 16....
Lowest common multiple (LCM)	This is the lowest number that is a multiple of two or more numbers.
Prime numbers	These numbers have exactly 2 factors – itself and 1. 1 is <u>not</u> a prime number as it only has one factor.
Even numbers	All these numbers are divisible by 2. Even numbers are written algebraically as $2n$
Odd numbers	All these numbers leave a remainder of 1 when they are divided by 2. Odd numbers are written algebraically as $2n+1$