Math Vocabulary

Coefficient: A number that is multiplied by a variable. For example in the expression 7x, 7 is the coefficient and x is the variable.

Degree of polymerization: The degree of polymerization is the value of the highest exponent in a function. For example $x^7 + 3x^4$ has a degree of 7 while $3x^2 + 4x^2$ has a degree of 3.

Exponent: Often referred to as power. It is the value that appears as a superscript above a number or variable and it represents the number of times that value should be multiplied by itself. For example in 7^2 the number 2 is the exponent and could be re-written as $7 * 7$. 7^x means that x is the exponent and that the exponent is a variable.

Function: $f(x) = 7x$ is an example of a function. X is an independent variable or an input value and f(x) is a dependent variable or output value. In a function for every input value there can be only one output. So any number that we choose for X will give us a specific output number for f(x) i.e. $x = 3$ so $7 * 3 = 21$, or $x = 1$ so $7 * 1 = 7$

Imaginary Numbers: Imaginary numbers come from taking the square root of a negative number ($\sqrt{-1}$). A square root must give the resulting number when it is squared ($\sqrt{4} = 2$ & $2^2 = 4$), but whenever a negative is squared it becomes a positive ($(-1)^2) = 1$) so according to this logic $\sqrt{-1}$ will not result in a real number. The result is an imaginary number 'i'. Here are some examples of imaginary numbers: $\sqrt{2} = \sqrt{2}i, \sqrt{-4} = 2i$ & $\sqrt{-1} = i$.

Integers: These are positive and negative numbers that are "whole" i.e. {…-2,-1,0,1,2…}

Irrational Numbers: Numbers that cannot be found by dividing two integers. i.e. π & e. These numbers are generally found through mathematical experimentation.

Polynomial: Any function where the degree of polymerization is greater than one and the exponential values are whole numbers, i.e $14x^3 + 7x^2 + x + 3$. Please also note that not every power needs to be represented in order for the function to still be a polynomial. $14x^7 + 3x$ is still a polynomial.

Quadratic: When the degree of a polymerization is two then the function is quadratic. $3x^2 = +4x + 2$ and $13x^2 - 42x - 17$ are both quadratics.

Rational Numbers: Any number that can be found by dividing two integers. 2/3 is a rational number and so is 2. 2 can be expressed in an infinite number of fractions, i.e. 8/4, 16/8, 14/7, 200/100.

Real Numbers: Any number that is not imaginary.

Variable: An unknown number or a value. When we are dealing with unknown number in an equation we will often use a letter or symbol to represent a variable.