Algebra - Basic Definitions

*It may help you to read*[*Introduction to Algebra*](http://www.mathsisfun.com/algebra/introduction.html)*first*

What is an Equation

An equation says that two things are equal. It will have an equals sign "=" like this:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***x*** | **+** | **2** | **=** | **6** |

That equations says: **what is on the left (x + 2) is equal to what is on the right (6)**

So an equation is like a **statement** "*this* equals *that*"

Parts of an Equation

So people can talk about equations, there are **names** for different parts (better than saying "that thingy there"!)

Here we have an equation that says 4x - 7 equals 5, and all its parts:

|  |  |  |
| --- | --- | --- |
| http://www.mathsisfun.com/algebra/images/variable-constant.gif |  | A **Variable** is a symbol for a number we don't know yet. It is usually a letter like x or y.  A number on its own is called a **Constant**.  A **Coefficient** is a number used to multiply a variable (4x means 4 times x, so 4 is a coefficient)  An **Operator** is a symbol (such as +, ×, etc) that represents an operation (ie you want to do something with the values). |
|  |  |  |
| http://www.mathsisfun.com/algebra/images/expression-term.gif |  | A **Term** is either a single number or a variable, or numbers and variables multiplied together.  An **Expression** is a group of terms (the terms are separated by + or - signs) |

So, now we can say things like "that expression has only two terms", or "the second term is a constant", or even "are you sure the coefficient is really 4?"

Exponents

|  |  |
| --- | --- |
| 8 to the Power 2 | The[exponent](http://www.mathsisfun.com/exponent.html) (such as the 2 in x2) says **how many times**to use the value in a multiplication.  Examples:  **82 = 8 × 8 = 64**  **y3 = y × y × y**  **y2z = y × y × z** |

Exponents make it easier to write and use many multiplications

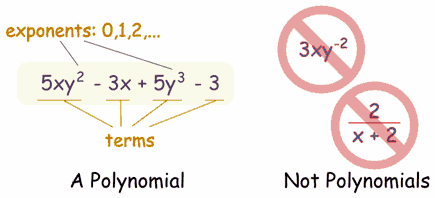
Example: **y4z2** is easier than **y × y × y × y × z × z**, or even **yyyyzz**

## Polynomial

Example of a Polynomial: **3x2 + x - 2**

A [polynomial](http://www.mathsisfun.com/algebra/polynomials.html) can have **constants**, **variables** and the **exponents 0,1,2,3,...**

But you never have division by a variable.



## Monomial, Binomial, Trinomial

There are special names for polynomials with 1, 2 or 3 terms:

monomial, binomial, trinomial

## Like Terms

[Like Terms](http://www.mathsisfun.com/algebra/like-terms.html) are **terms** whose variables (and their [exponents](http://www.mathsisfun.com/exponent.html) such as the 2 in x2) are the same.

In other words, terms that are "like" each other. (Note: the **coefficients** can be different)

### Example:

|  |  |  |
| --- | --- | --- |
| (1/3)xy2 | -2xy2 | 6xy2 |

Are all **like terms** because the variables are all **xy2**