

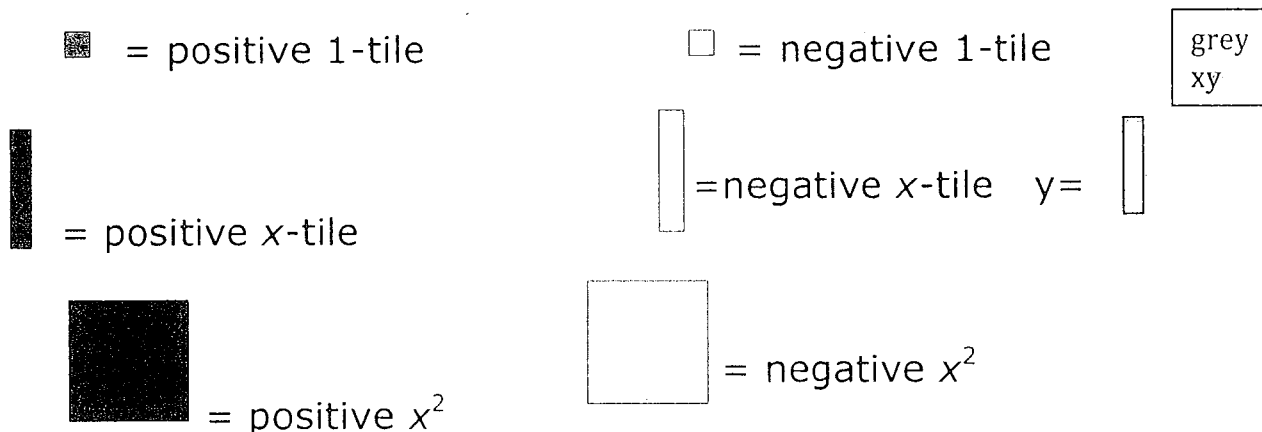
Variable: any letter or symbol used to represent a number, the value varies	x, y
Coefficient: a # that multiplies a variable or an expression	$3(9)^2$, $4x$ (the #'s 3 & 4 are the constants)
Terms: an expression formed from the product (x) of numbers & /or variables	$9y$, 3^4 , $6x^2$, 5 are all examples of terms
Constant: another name for a number, can also be called an expression	11 , 56 , 3.2 , $\frac{1}{2}$ (constants have a degree of 0 do not confuse this as having an exponent of 0)
Equation: a number sentence with an equal sign	$4 + 2 = 6$ $3x = 9$
Expression: a combination of #'s and variables without an equal sign	$3x + 5$ $7 + x$ $4x$
Like Terms: have the same variable raised to the same power & can be combined	$4x$ and $5x$ are like terms $8y^2$ and $6y^2$ are like terms $4 + 2$ are like terms
Polynomials: an algebraic expression with different terms connected by + and/or -	$3 + 5x - 8x^2$ (this expression has 3 terms so it is a trinomial)
Degree of a Term: sum of the exponents on the variables in a single term	$4xy^2$ has a degree 3 (because it is implied that x has an exponent of 1 then add that to the exponent of 2 of the y variable)
Degree of a Polynomial: the degree of the highest -degree term in the polynomial	$7a - 4a^2$ this polynomial has a degree 2
Degree zero: numbers in a polynomials have a 0 degree	$7 - 2x$ (degree 1 because 7 is a constant therefore, it has a degree 0)
Opposite Polynomial: polynomials that have a sum of 0	$x^2 - 1$ opposite is $-x^2 + 1$ or $2x + 3$ opposite is $-2x - 3$

<p>What is a coefficient?</p>	<p>The coefficient is the number right before the variable or power. It multiplies the variable or power.</p> <p>3a 3 is the coefficient $\frac{1}{2}x$ $\frac{1}{2}$ is the coefficient -y -1 is the coefficient x^2 1 is the coefficient</p>
<p>What is the degree of a polynomial?</p>	<p>Every term of a polynomial (except the constant which has a degree of 0) have a degree. This is figured out by adding the values of the exponents in each term. The term with the highest degree tells you the degree for the whole expression</p>
<p>What does it mean to simplify a polynomial?</p>	<p>That means you find all the terms that are "like terms" (from the same family) and combine them to make a more compact or simpler expression</p> <p>Example: $3b^2 + 6 - 4b + 3c^2 - 5c^2 + 2c - 8$ simplifies to</p>
<p>How do you add polynomials?</p>	<p>Just combine all the like terms</p> $(3b^2 + 4b) + (-5b^2 + b) = -2b^2 + 5b$
<p>How do you subtract polynomials?</p>	<p>Subtraction means adding the opposite</p> $(3b^2 + 4b) - (-5b^2 + b) \text{ becomes}$ $(3b^2 + 4b) + (+5b^2 - b) = 8b^2 + 3b$

POLYNOMIALS are expressions made up of terms that are connected together by addition (plus sign) and subtraction (minus sign)

They can be (1 term) monomials $3b^2$, (2 terms) binomials $3b^2 + 4b$,

(3 terms) trinomials $3b^2 + 4b - 8$ or (>3 terms) polynomials $3b^2 + 4b - 8 - 3c$









Expression is a math statement without an equal sign. Example: $2x + 4$

Equation is a math statement with an equal sign. Example: $2x + 4 = 14$

Sum means _____ + **Difference** means _____ -

Product means _____ × **Quotient** means _____ ÷

What is a variable ?	Any letter that is standing in for something that varies or changes. For example if you charge \$10 an hour for babysitting then $10h$ means 10 times the number of hours that you babysit. If you babysit for 5 hours then h is worth 5. Any letter can be used as a variable. The most common letter is x .
What does it mean if a number is right next to a variable?	$3a$ means 3 times a $\frac{1}{2}x$ means one half times x $\frac{x}{4}$ means x divided by 4
What is a constant ? Example: In this expression: $3b^2 + 4b - 3c + 12$ the constant is 12	The constant is a number in an equation or expression which is not directly next to a variable. It is a number that stands by itself as a term. It is constant because the value never changes.

Concept	Things to Remember
<p>The language of math is universal. Algebra is a branch of math that uses variables</p> <p>Polynomials are made up of terms. Terms are connected by addition and subtraction</p> <p>Each algebraic term has a degree</p> <p>Polynomials can be modeled by algebraic tiles</p>	<ul style="list-style-type: none"> Polynomials can be (1) monomials, (2) binomials, (3) trinomials or (>3) polynomials Find the degree of a term by adding the exponents of the variable(s) in the term Constant terms have a degree of 0 <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  = positive 1-tile </div> <div style="text-align: center;">  = negative 1-tile </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  = positive x-tile </div> <div style="text-align: center;">  = negative x-tile </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  = positive x^2 </div> <div style="text-align: center;">  = negative x^2 </div> </div>
<p>Equivalent Expressions</p> <p>Polynomials can be written in simplified form by combining like terms</p>	<ol style="list-style-type: none"> Identify the coefficients, variables and exponents Identify like terms (terms that have the same variable raised to the same power but may have different coefficients) Combine the like terms
<p>We are not solving an equation just simplifying an expression by:</p> <p>1. Adding Polynomials: Combining (adding) like terms $(3x - 4) + (2x + 5)$ becomes $3x + 2x - 4 + 5$ and then further simplified to $5x + 1$</p> <p>2. Subtracting Polynomials: Adding the opposite <i>and then</i> combining the like terms $(6x^2 - 3x + 4) - (x^2 - 3x + 2)$ $= (6x^2 - 3x + 4) + (-x^2 + 3x - 2)$ $= 6x^2 - x^2 - 3x + 3x + 4 - 2$ (Note: $-3x + 3x = 0$ so it does not need to be included in the answer) $= 5x^2 + 2$</p>	