

## Basic Algebra Formula Sheet - Part 1

$m = \frac{y_2 - y_1}{x_2 - x_1}$	For use in finding the slope of a line when given two points. $(x_1, y_1)$ and $(x_2, y_2)$ are two points on the line
$y = mx + b$	Equation of a line in slope-intercept form. m = slope                      b = y-intercept
$ax + by = c$	Equation of a line in standard form. a and b should be integers and a should be positive
$y - y_1 = m(x - x_1)$	Equation of a line in point-slope form. m = slope $(x_1, y_1)$ point on the line
$a^m \cdot a^n = a^{m+n}$	Product Rule
$\frac{a^m}{a^n} = a^{m-n}$	Quotient Rule
$(a^m)^n = a^{mn}$	Power Rule
$(ab)^n = a^n b^n$	Power of a Product Rule
$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$	Power of a Quotient Rule
$a^{-n} = \frac{1}{a^n}$	Negative Integral Exponents
$a^{-n} = \left(\frac{1}{a}\right)^n$ $a^{-1} = \frac{1}{a}$ $\frac{1}{a^{-n}} = a^n$ $\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n$	Rules for Negative Exponents
$a^0 = 1$	Definition of Zero Exponent
$(a + b)^2 = a^2 + 2ab + b^2$	The Square of a Sum
$(a - b)^2 = a^2 - 2ab + b^2$	The Square of a Difference
$(a + b)(a - b) = a^2 - b^2$	The Product of a Sum and a Difference
$(f + g)(x) = f(x) + g(x)$	Sum Function
$(f - g)(x) = f(x) - g(x)$	Difference Function
$(f \cdot g)(x) = f(x) \cdot g(x)$	Product Function
$\left(\frac{f}{g}\right)(x) = \frac{f(x)}{g(x)}$	Quotient Function