

Algebra II Formula Chart

Linear Functions	
Slope of a line	$m = \frac{y_2 - y_1}{x_2 - x_1}$
Point Slope Form	$y - y_1 = m(x - x_1)$
Laws of Exponents	
Product of powers	$a^m a^n = a^{(m+n)}$
Quotient of powers	$\frac{a^m}{a^n} = a^{(m-n)}$
Power of a power	$(a^m)^n = a^{mn}$
Rational exponent	$a^{\frac{m}{n}} = \sqrt[n]{a^m}$
Negative exponent	$a^{-n} = \frac{1}{a^n}$
Factoring	
Perfect Square Trinomials	$(a + b)^2 = a^2 + 2ab + b^2$ $(a - b)^2 = a^2 - 2ab + b^2$
Difference of squares	$a^2 - b^2 = (a - b)(a + b)$
Difference of cubes	$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$
Sum of cubes	$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$
Quadratic Functions	
Vertex (h, k)	$h = \frac{-b}{2a} \quad k = f(h)$
Quadratic Formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Vertex Form	$f(x) = a(x - h)^2 + k$
Logarithms	
Product	$\log_b(xy) = \log_b x + \log_b y$
Quotient	$\log_b\left(\frac{x}{y}\right) = \log_b x - \log_b y$
Power	$\log_b(x^r) = r \log_b x$