

ALGEBRA FORMULA SHEET

MathMaster - Your Complete Reference Guide

LINEAR EQUATIONS

Slope-Intercept Form: $y = mx + b$

Point-Slope Form: $y - y_1 = m(x - x_1)$

Standard Form: $Ax + By = C$

Slope Formula: $m = (y_2 - y_1) / (x_2 - x_1)$

QUADRATIC EQUATIONS

Standard Form: $ax^2 + bx + c = 0$

Quadratic Formula: $x = (-b \pm \sqrt{b^2 - 4ac}) / 2a$

Vertex Form: $y = a(x - h)^2 + k$

Discriminant: $D = b^2 - 4ac$

EXPONENT RULES

Product Rule: $a^m \cdot a^n = a^{(m+n)}$

Quotient Rule: $a^m / a^n = a^{(m-n)}$

Power Rule: $(a^m)^n = a^{(mn)}$

Zero Exponent: $a^0 = 1$

Negative Exponent: $a^{-n} = 1/a^n$

FACTORING PATTERNS

Difference of Squares: $a^2 - b^2 = (a+b)(a-b)$

Perfect Square: $a^2 + 2ab + b^2 = (a+b)^2$

Sum of Cubes: $a^3 + b^3 = (a+b)(a^2-ab+b^2)$

Difference of Cubes: $a^3 - b^3 = (a-b)(a^2+ab+b^2)$

LOGARITHM RULES

Product Rule: $\log(ab) = \log(a) + \log(b)$

Quotient Rule: $\log(a/b) = \log(a) - \log(b)$

Power Rule: $\log(a^n) = n \cdot \log(a)$

Change of Base: $\log_b(a) = \log(a)/\log(b)$