

Algebra Formula Sheet

Intermediate Algebra ~ Prof. Sally J. Keely, M.S.

<p>Factoring Formulae: Note that F=First, L=Last as a mnemonic.</p> <p>Perfect Square Trinomials: $F^2 \pm 2FL + L^2 = (F \pm L)^2$</p> <p>Difference of Squares: $F^2 - L^2 = (F - L)(F + L)$</p> <p>Sum of Squares: $F^2 + L^2 = (F - L \cdot i)(F + L \cdot i)$ (Factorable in \mathbb{C}omplex realm only; prime in \mathbb{R}eals. i=imaginary number)</p> <p>Difference of Cubes: $F^3 - L^3 = (F - L)(F^2 + FL + L^2)$</p> <p>Sum of Cubes: $F^3 + L^3 = (F + L)(F^2 - FL + L^2)$</p>	
<p>Quadratic Formula:</p> $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ <p>Discriminant: $D = b^2 - 4ac$</p>	<p>Equations & Vertex of a Parabola:</p> $y = a(x - h)^2 + k \Rightarrow V = (h, k)$ $y = ax^2 + bx + c \Rightarrow V_x = \frac{-b}{2a}$ <p>(Plug V_x in for x to find y-coordinate of vertex)</p>
<p>Properties of Logarithms:</p> $\log_b(xy) = \log_b x + \log_b y$ $\log_b\left(\frac{x}{y}\right) = \log_b x - \log_b y$ $\log_b(x^p) = p \cdot \log_b x$	<p>Pythagorean Theorem:</p> $a^2 + b^2 = c^2 \quad (c \text{ is the hypotenuse})$ <p>Change of Base Theorem:</p> $\log_b x = \frac{\ln x}{\ln b} = \frac{\log x}{\log b}$