

Basic Algebra Formula Sheet – Part 2

$a^2 + 2ab + b^2 = (a + b)^2$	Perfect Square Trinomial
$a^2 - 2ab + b^2 = (a - b)^2$	Perfect Square Trinomial
$a^2 - b^2 = (a + b)(a - b)$	The Difference Between Two Squares
$a^2 + b^2$ is prime	The sum of two squares does not factor.
$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$	The Difference of Two Cubes
$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$	The Sum of Two Cubes
$\frac{a}{b} = \frac{c}{d} \rightarrow ad = bc$	Extremes-Means Property (Hot Dog Rule)
$\sqrt[n]{ab} = \sqrt[n]{a} \cdot \sqrt[n]{b}$	Product Rule for Radicals
$\sqrt[n]{\frac{a}{b}} = \frac{\sqrt[n]{a}}{\sqrt[n]{b}}$	Quotient Rule for Radicals
$a^{\frac{1}{n}} = \sqrt[n]{a}$	Definition of $a^{\frac{1}{n}}$
$a^{\frac{m}{n}} = (\sqrt[n]{a})^m = (\sqrt[n]{a^m})$	Definition of $a^{\frac{m}{n}}$
$(x^2)^{\frac{1}{2}} = x $	Square Root of x^2
$i = \sqrt{-1}$ $i^2 = -1$ $i^3 = -i$ $i^4 = 1$	Imaginary Numbers
$a + bi$	Complex Numbers
The solution to $ax^2 + bx + c = 0$, when $a \neq 0$ is: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	The Quadratic Formula