



ALGEBRA REVIEW

Quadratic Formula

Special Factors

$x^2 + a^2 = (x + ai)(x - ai)$
 (if $a \neq 0$) are:

$x^2 - a^2 = (x + a)(x - a)$
 $x^2 + a^2 = (x + ai)(x - ai)$

EXAMPLES
 $(x^2 - 9) = (x + 3)(x - 3)$
 $(x^2 + 4) = (x + 2i)(x - 2i)$

$(ab)^x = a^x b^x$
 $a^0 = 1, a \neq 0$
 $a^{-x} = \frac{1}{a^x}$

$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$
 $\sqrt{a \cdot b} = \sqrt{a} \cdot \sqrt{b}$

Absolute Values
 $\sqrt{-x^2 + a^2} \neq -\sqrt{x^2 - a^2}$
 We can't factor a negative sign out of the square root.

$\frac{a}{x+h} \neq \frac{a}{x} + \frac{a}{h}$
 The sum of two fractions is not the same as the sum of their numerators.

$\sqrt{x^2 + a^2} \neq x + a$
 The square root of a sum is not the sum of the square roots.

$\frac{a+bx}{a} = \frac{a}{a} + \frac{bx}{a} = 1 + \frac{bx}{a}$
 The equation should be:

$\left(\frac{x}{a}\right)^2 = \frac{bx}{a}$
 $\left(\frac{x}{a}\right)^2 = \frac{bx}{a}$

$\frac{\left(\frac{x}{a}\right)^2}{b} = \frac{\left(\frac{x}{a}\right)^2}{b} = \frac{1}{a \cdot b} = \frac{1}{ab}$

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