

Solving Quadratic Equations

Quick Review	
<p>A <i>quadratic equation</i> is any equation that can be written in the form $ax^2 + bx + c = 0$</p>	<p>Examples:</p> <p>1) $x^2 - 5x + 6 = 0$</p> <p>2) $2y^2 + 11 = 10y$</p>
<p>To solve a <i>quadratic equation</i> that has a “middle” term, the bx part of the equation, first set the equation equal to zero.</p>	<p>Example:</p> <p>1) $x^2 - 5x + 6 = 0$ (this is already equal to zero!)</p> <p>2) $2y^2 + 11 = 10y$</p>
<p>A <i>quadratic equation</i> can <u>always</u> be solved using the <i>quadratic formula</i>:</p> $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a},$ <p>and can <u>sometimes</u> be solved by factoring.</p>	<p>Example:</p> <p>1) by factoring</p> $x^2 - 5x + 6 = 0$ $(x - 3)(x - 2) = 0$ $(x - 3) = 0, x = 3$ $(x - 2) = 0, x = 2$ <p>2) using quadratic formula</p> $2y^2 - 10y + 11 = 0$ $a = 2, b = -10, c = 11$ $y = \frac{-(-10) \pm \sqrt{(-10)^2 - 4(2)(11)}}{2(2)}$ $y = \frac{10 \pm \sqrt{100 - 88}}{4}$ $y = \frac{10 \pm \sqrt{12}}{4}$ $y = \frac{10 + \sqrt{12}}{4}, y = \frac{10 - \sqrt{12}}{4}$

Problems: Solve each of the following quadratic equations.

1. $x^2 - 3x + 2 = 0$

2. $2x^2 + 5x = 20$

3. $y^2 + 7y = 18$

4. $4y^2 - 52 = 5y$

5. $z^2 + 13 = 3z$

6. $9 + y^2 = -6y$