Section 1-2 Quadratic Equations

Example 1: $x^2 - 9x = 0$

$\quad\quad\quad$ **FACTORE FORM:** $x(x - 9) = 0$

$\quad\quad\quad$ **SOLVE** $x = 0$ and $x = 9$ $solution$ $set\{0,9\}$

Example 2: **FACTOR** $\quad 11x^2 - 16x - 12 = 0$

$\quad\quad\quad$ $x^2 - 16x - 132 = 0$ *slide and divide

$\quad\quad\quad$ (x-22)(x+6)=0

$\quad\quad$ $x = -\dfrac{22}{11} = -2, \dfrac{6}{11}$ **Factored form** $(x + 2)(11x - 6)$

Example 3: **SOLVE** $3x^2 + 5x + 2 = 0$

$\quad\quad\quad$ $x^2 + 5x + 6 = 0$ *slide and divide

$\quad\quad\quad$ (x+3)(x+2)=0

$\quad\quad\quad\quad$ $x = -\dfrac{3}{3}, -\dfrac{2}{3}$ or $solution$ set $\{-1, -\dfrac{2}{3}\}$

Example 4: $\quad$ (2y+3)²= 9 $\quad$ *square root of both sides

$\quad\quad\quad$ $2y + 3 = \pm 3$

$\quad\quad\quad$ 2y+3= 3 and 2y+3=-3

$\quad\quad\quad$ y=0 and $y = -3$ $solution$ set $\{-3,0\}$

Examples Quadratic

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Example 1: $y = 4x^2 - 5x + 3$

$a = 4, b = -5, c = 3$

$$\frac{5 \pm \sqrt{25 - 4(4)(3)}}{2(4)} = \frac{5 \pm \sqrt{-23}}{8} = \frac{5 \pm 23i}{8}$$

Example 2: $y = 2x^2 + 6x + 4$

$a = 2, b = 6, c = 4$

$$\frac{-6 \pm \sqrt{36 - 4(2)(4)}}{2(2)} = \frac{-6 \pm \sqrt{4}}{4} = \frac{-6 \pm 2}{4} =$$

$$\frac{-6}{4} + \frac{2}{4} = -1 \; and \; \frac{-6}{4} - \frac{2}{4} = -\frac{3}{2}$$