

Chp.4: Solving Quadratics

- ✓ ① By graphing — where crosses x-axis
- ✓ ② By factoring — binomials
— trinomials
- ⇒ ③ By Completing the Square
- ④ Quadratic Formula

Sec. 4.3: Solving by Completing the Square

example 1:

$$(x^2 - 8x) + 1 = 0$$

$$(x^2 - 8x + 16) + 1 - 16 = 0$$

$$(x - 4)^2 - 15 = 0$$

* solve for x:

$$(x - 4)^2 = 15$$

$$x - 4 = \pm \sqrt{15}$$

$$x = 4 \pm \sqrt{15} \rightarrow \begin{matrix} 4 + \sqrt{15} \\ 4 - \sqrt{15} \end{matrix}$$

example 2:

$$(-3x^2 - 18x) - 2 = 0$$

$$-3(x^2 + 6x + 9) + 27 - 2 = 0$$

$$-3(x + 3)^2 + 25 = 0$$

$$-3(x + 3)^2 = -25$$

$$(x + 3)^2 = \frac{25}{3}$$

$$x + 3 = \pm \sqrt{\frac{25}{3}}$$

$$\pm \frac{5}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \pm \frac{5\sqrt{3}}{3}$$

$$x + 3 = \pm \frac{5\sqrt{3}}{3}$$

$$x = \frac{-3}{1} \pm \frac{5\sqrt{3}}{3}$$

$$x = \frac{-9 \pm 5\sqrt{3}}{3} \quad \text{EXACT ROOTS}$$

* Note ex. 3 on pg. 238
Done a little different.

Practice pg. 240-43

3a, b, f

6 b, c

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