

Solution to Problem #7:

$$-x^2 + 6x + 18 = 0$$

$$-1(-x^2 + 6x + 18) = -1(0)$$

$$x^2 - 6x - 18 = 0$$

$$x^2 - 6x - 18 + 18 = 0 + 18$$

$$x^2 - 6x = 18$$

$$x^2 - 6x + \left(\frac{-6}{2}\right)^2 = 18 + \left(\frac{-6}{2}\right)^2$$

$$x^2 - 6x + 9 = 18 + 9$$

$$(x - 3)^2 = 27$$

$$\sqrt{(x - 3)^2} = \pm\sqrt{27}$$

$$x - 3 = \pm\sqrt{27}$$

$$x - 3 + 3 = \pm\sqrt{27} + 3$$

$$x = \pm\sqrt{27} + 3$$

$$x_1 = \sqrt{27} + 3$$

$$= \sqrt{9 \cdot 3} + 3$$

$$\boxed{x_1 = 3\sqrt{3} + 3 \text{ or } 3 + 3\sqrt{3}}$$

$$x_2 = -\sqrt{27} + 3$$

$$= -\sqrt{9 \cdot 3} + 3$$

$$\boxed{x_2 = -3\sqrt{3} + 3 \text{ or } 3 - 3\sqrt{3}}$$