

## Solving Quadratic Equations by Completing the Square

complete the square

$$x^2 + bx = d$$

Add  $(\frac{b}{2})^2$  on both sides

$$x^2 + bx + (\frac{b}{2})^2 = d + (\frac{b}{2})^2$$

$$(x + \frac{b}{2})^2 = d + (\frac{b}{2})^2$$

**Square Root Property**

$$\text{If } x^2 = d$$

$$x = \pm\sqrt{d}$$

Find the value of  $c$  that makes each trinomial a perfect square.

1)  $x^2 + 26x + c$

$$c = (\frac{b}{2})^2 = (\quad)^2 =$$

$$x^2 + 26x + \quad = ( \quad + \quad )^2$$

2)  $x^2 - 13x + c$

$$c = (\quad)^2 =$$

$$x^2 - 13x + \quad = ( \quad )^2$$

3) Solve the equation by completing the square  $x^2 + 6x - 16 = 0$

$$x^2 + 6x - 16 = 0$$

$$x^2 + 6x =$$

$$x^2 + 6x + \quad = 16 +$$

$$(\quad + \quad)^2 =$$

+

$$+ = \pm$$

$$X = \pm -$$

The Solutions are and