

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

$$\begin{array}{rcl} x^2 + 6x - 16 & = & 0 \\ + & & + \end{array}$$

$$x^2 + 6x =$$

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

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

$$+ = \pm \sqrt{\quad}$$

$$+ = \pm$$

$$x = \pm \quad -$$

The Solutions are                      and