

**Solving Quadratics by Completing the Square**

Solve these quadratic equations by completing the square.

- (a)  $x^2 - 2x - 1 = 0$
- (b)  $x^2 - 4x - 1 = 0$
- (c)  $x^2 + 4x + 2 = 0$
- (d)  $x^2 + 4x - 2 = 0$
- (e)  $x^2 + 10x + 2 = 0$
- (f)  $x^2 + 12x - 5 = 0$

- (a)  $x = 1 \pm \sqrt{2}$
- (b)  $x = 2 \pm \sqrt{5}$
- (c)  $x = -2 \pm \sqrt{2}$
- (d)  $x = -2 \pm \sqrt{6}$
- (e)  $x = -5 \pm \sqrt{23}$
- (f)  $x = -6 \pm \sqrt{41}$

Solve these quadratic equations by completing the square.

- (a)  $x^2 + 11x - 1 = 0$
- (b)  $x^2 + 11x - 3 = 0$
- (c)  $x^2 + 5x - 3 = 0$
- (d)  $x^2 - 5x - 3 = 0$
- (e)  $x^2 - x - 3 = 0$

- (a)  $x = \frac{-11 \pm 5\sqrt{5}}{2}$
- (b)  $x = \frac{-11 \pm \sqrt{133}}{2}$
- (c)  $x = \frac{-5 \pm \sqrt{37}}{2}$
- (d)  $x = \frac{5 \pm \sqrt{37}}{2}$
- (e)  $x = \frac{1 \pm \sqrt{13}}{2}$

Solve these quadratic equations by completing the square.

- (a)  $2x^2 - 8x + 3 = 0$
- (b)  $2x^2 - 4x - 3 = 0$
- (c)  $3x^2 + 12x + 3 = 0$
- (d)  $3x^2 - 18x - 2 = 0$
- (e)  $4x^2 + 16x - 2 = 0$
- (f)  $5x^2 + 20x - 5 = 0$

- (a)  $x = \frac{4 \pm \sqrt{10}}{2}$
- (b)  $x = \frac{2 \pm \sqrt{10}}{2}$
- (c)  $x = -2 \pm \sqrt{3}$
- (d)  $x = \frac{9 \pm \sqrt{87}}{3}$
- (e)  $x = \frac{-4 \pm 3\sqrt{2}}{2}$
- (f)  $x = -2 \pm \sqrt{5}$

Solve these quadratic equations by completing the square.

- (a)  $2x^2 + 3x - 1 = 0$
- (b)  $2x^2 + 5x - 1 = 0$
- (c)  $2x^2 - 5x - 3 = 0$
- (d)  $2x^2 - 11x - 3 = 0$

- (a)  $x = \frac{-3 \pm \sqrt{17}}{4}$
- (b)  $x = \frac{-5 \pm \sqrt{33}}{4}$
- (c)  $x = 3, x = -\frac{1}{2}$
- (d)  $x = \frac{11 \pm \sqrt{145}}{4}$