Name _____ Class _____ Date _____

Reteaching 5-5

Quadratic Equations

OBJECTIVE: Solving quadratic equations by graphing and factoring

MATERIALS: None

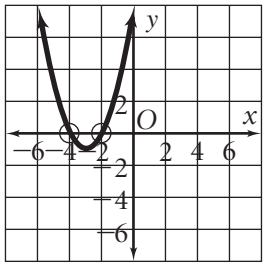
When graphing a quadratic equation, remember to use the formula $h = -\frac{b}{2a}$ to find the x-coordinate of the vertex of a parabola. To complete the graph, plot the y-intercept $(0, c)$ and then make the parabola symmetrical.

Example

Solve the quadratic equation $x^2 + 6x + 8 = 0$ by graphing and factoring.

Graphing

Step 1
Graph the associated function $y = x^2 + 6x + 8$.



Step 2
Circle the place(s) where the graph crosses the x-axis.

Step 3
Find the values of x for the circled points.
$x = -4$ or $x = -2$

Factoring

Step 1
Factor the equation.
$(x + 4)(x + 2) = 0$

Step 2
Solve each factor for x.
$x + 4 = 0$ or $x + 2 = 0$
$x = -4$ or $x = -2$

The values for x are the same for each method.

Exercises

Solve each quadratic equation first by graphing and then by factoring.

1. $x^2 + 7x + 10 = 0$ **2.** $x^2 - 5x + 6 = 0$ **3.** $x^2 + 6x + 5 = 0$

4. $x^2 + 4x + 3 = 0$ **5.** $3x^2 + 10x + 3 = 0$ **6.** $0 = 2x^2 - 3x + 1$

Solve each quadratic equation by factoring.

7. $x^2 - 7x + 12 = 0$ **8.** $2x^2 + x - 15 = 0$ **9.** $x^2 + x - 2 = 0$

10. $3x^2 - 5x + 2 = 0$ **11.** $x^2 + 5x + 6 = 0$ **12.** $x^2 + x - 20 = 0$