

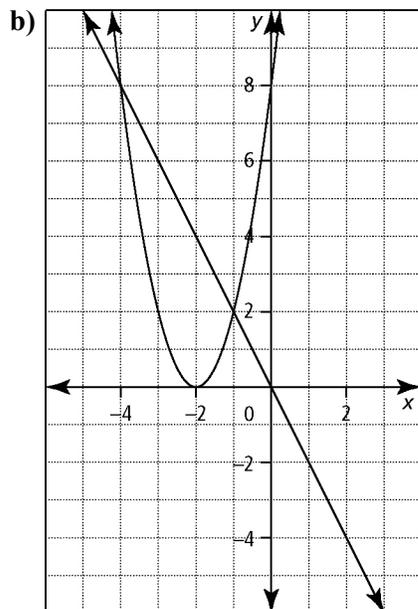
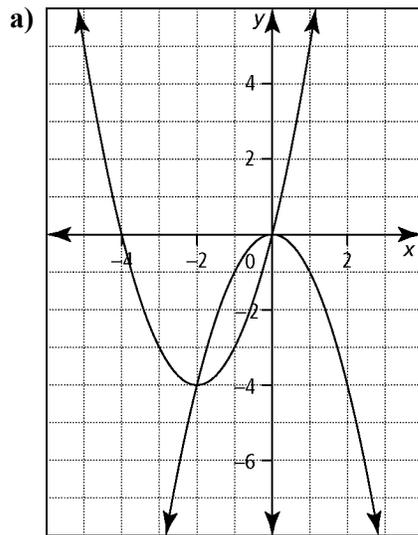
## Section 8.1 Extra Practice

1. Verify that  $(1, -3)$  and  $(4, 0)$  are solutions to the following system of equations.

$$x^2 - 4x - y = 0$$

$$x - y - 4 = 0$$

2. Use the graph to solve the system of equations. Then, write the system of equations represented in each graph.



3. Solve each system of equations by graphing. Express answers to the nearest whole units. Verify your solutions.

a)  $x^2 - 4x - 3y = 5$

$$x = 2$$

b)  $y = (x - 2)(x - 7)$

$$y = x - 7$$

c)  $0 = x - 2y + 10$

$$y = -1(x - 3)^2 + 4$$

d)  $2x^2 - 5x - y = -1$

$$7x + y = 1$$

4. Solve each system of equations by graphing. Express answers to the nearest hundredth.

a)  $x^2 + 8x - y = -12$

$$x^2 - y = 8$$

b)  $y = 2x^2 - x + 1$

$$y = x^2 + 9x - 8$$

c)  $y = 5x^2 - 10x + 5$

$$y = -x^2 - 3x + 10$$

d)  $y = 3(x + 4)^2 - 2$

$$y = -2(x + 3)^2 - 2$$

5. When the cost to produce  $n$  items is equal to the revenue from selling  $n$  items, this is called the breakeven point. If the cost is \$100 plus a variable cost, the function is  $C(n) = 100 + (2 - 0.01n)n$ . The selling price is \$2.50 per unit. The revenue function is  $R(n) = 2.50n$ . Determine the breakeven point graphically, to the nearest whole number of units.

6. The ages of Max and his father add up to 35 years. Max's father's age is the same as five more than the square of Max's age.

a) Write a system of equations to represent this situation. Define your variables.

b) Solve the system graphically. Are all possible solutions meaningful? Explain.

c) How old are Max and his father?

