

7.7 Solving Systems of Equations by Graphing

1. Solve each system by graphing. Sketch each system. Complete without a calculator.

a. $y = x + 7$

$$y = (x + 7)^2 + 3$$

b. $f(x) = -x + 5$

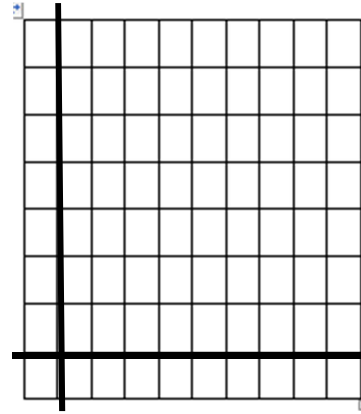
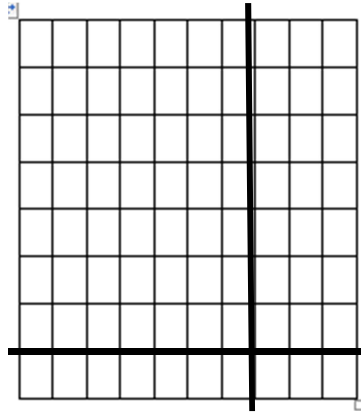
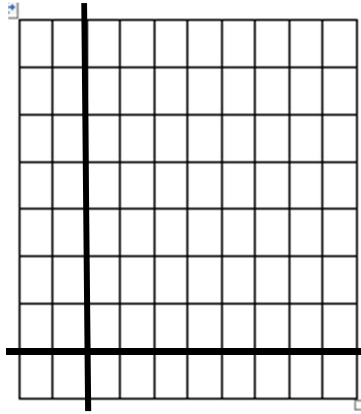
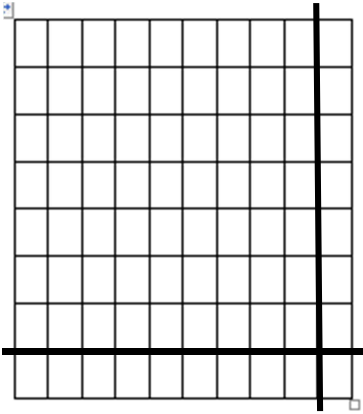
$$g(x) = \frac{1}{2}(x - 4)^2 + 1$$

c. $y = 2(x + 1)^2 + 4$

$$y = (x + 1)^2$$

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

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



2. Solve each system by using a graphing calculator. Include window dimensions

a. $y = x^2 - 6x + 8$

$$y = x - 2$$

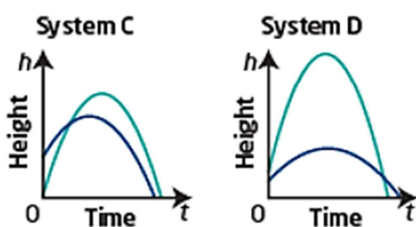
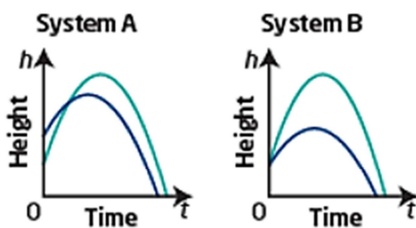
b. $f(x) = x^2 - 2x + 3$

$$g(x) = -2x^2 + 4x + 3$$

c. $y = 3x^2 - 12x + 17$

$$-0.25x^2 + 0.5x - y + 1.75 = 0$$

3. The Canadian Arenacross Championship for motocross was held in Penticton in 2010. In the competition, riders launch their bikes off jumps and perform stunts. The height above ground level of one rider going off two different jumps at the same speed is plotted. Time is measured from the moment the rider leaves the jump. The launch height and the launch angle of each jump are different.



a. Which system models the situation? Explain your choice.

b. Interpret the point(s) of intersection for the graph you selected.

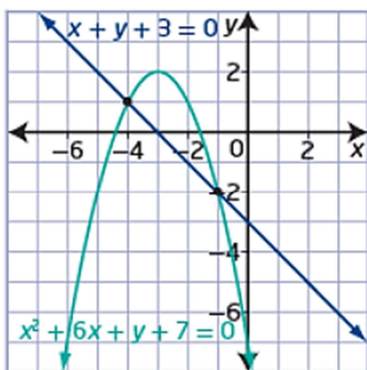
4. Verify that $(0, -5)$ and $(3, -2)$ are solutions to the following system of equations.

$$y = -x^2 + 4x - 5$$

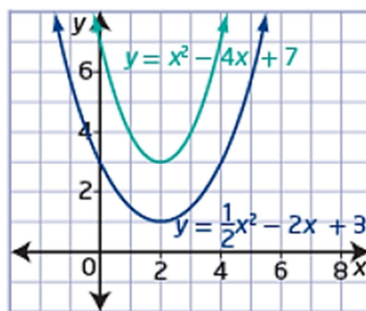
$$y = x - 5$$

5. What type of system of equations is each graph? Give the solution(s) to the system.

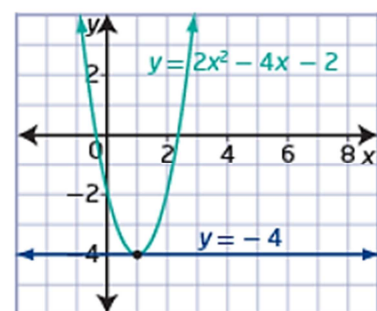
a.



b.



c.



6. For each situation, sketch a graph to represent a system of quadratic-quadratic equations with two solutions so that the two parabolas have:

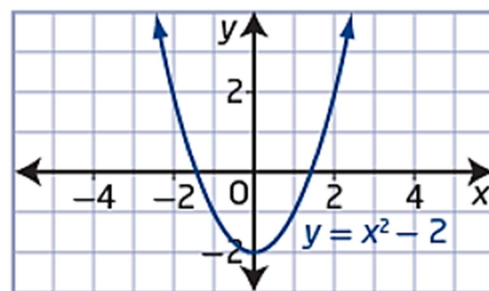
a. the same axis of symmetry.

b. the same axis of symmetry and the same y-intercept.

c. the same x-intercepts.

d. different axes of symmetry but the same y-intercept.

8. Given the graph of a quadratic function as shown, determine the equation of a line such that the quadratic function and the line form a system that has:
- a. no solution



- b. one solution

- c. two solutions