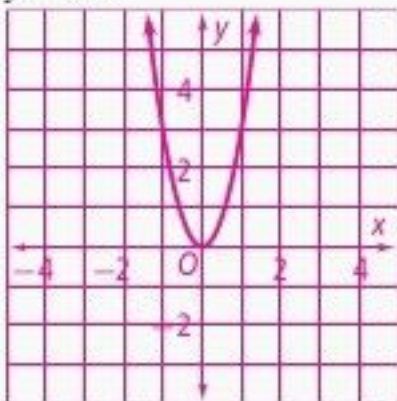


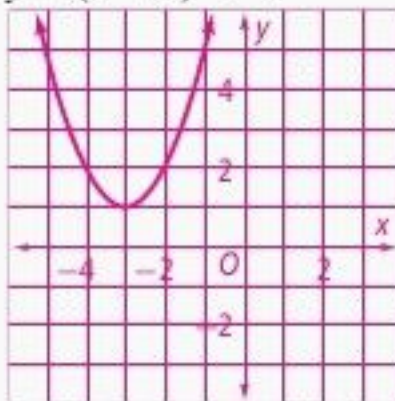
Extra Practice**Chapter 4****Lessons 4-1 and 4-2**

Graph each system.

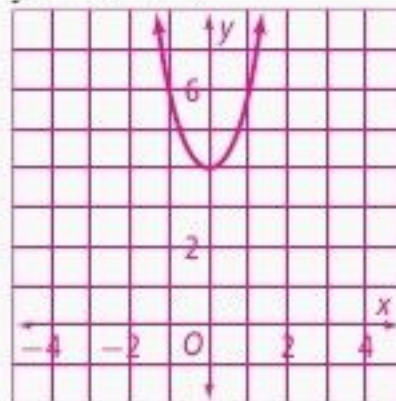
1. $y = 3x^2$



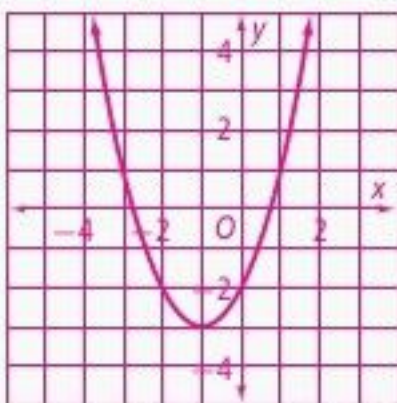
2. $y = (x + 3)^2 + 1$



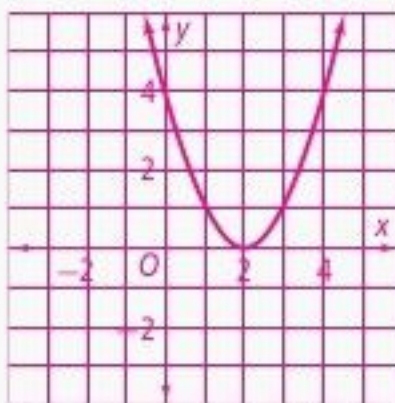
3. $y = 2x^2 + 4$



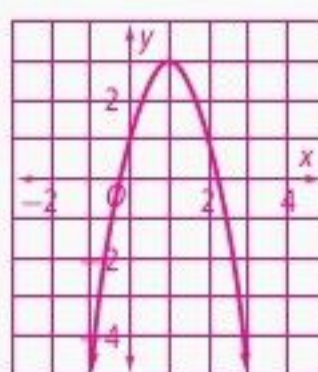
4. $y = (x + 1)^2 - 3$



5. $y = (x - 2)^2$



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



Identify the vertex, axis of symmetry, minimum or maximum value, and domain and range of each function.

7. $y = 4(x - 2)^2$

(2, 0); $x = 2$; minimum: 0;
domain: all real numbers;
range: $y \geq 0$

8. $f(x) = (x + 1)^2 + 2$

(-1, 2); $x = -1$; minimum:
2; domain: all real numbers;
range: $f(x) \geq 2$

9. $y = -\frac{1}{2}(x - 4)^2 - 10$

(4, -2); $x = 4$; maximum:
-2; domain: all real
numbers; range: $y \leq -2$

10. $f(x) = x^2 - 4x + 5$

(2, 1); $x = 2$; minimum: 1;
domain: all real numbers;
range: $y \geq 1$

11. $f(x) = -2x^2 + 4x - 3$

(1, -1); $x = 1$; maximum: -1;
domain: all real numbers;
range: $y \leq -1$

12. $y = x^2 + 5x - 14$

 $(-\frac{5}{2}, -\frac{81}{4})$; $x = -\frac{5}{2}$; minimum:
 $-\frac{81}{4}$; domain: all real numbers;
range: $y \geq -\frac{81}{4}$

13. A ball is dropped from the top of a building. The distance in meters above the ground y of the ball after t seconds can be modeled by the equation $y = -9.8t^2 + 100$.

a. What is the y -intercept of the equation? **100**b. Describe the meaning of the y -intercept of the graph of the equation. **The y -intercept is the starting height of the ball.**