



Example 1 Use a table of values to graph each equation. State the domain and range.

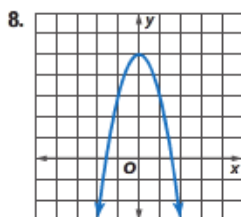
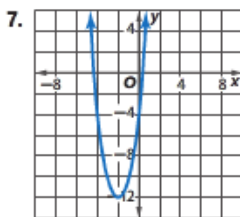
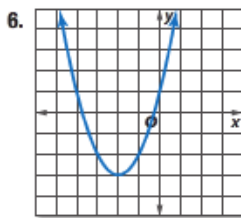
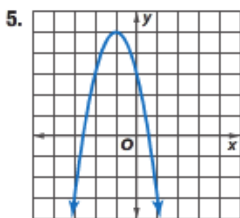
1. $y = 2x^2 + 4x - 6$

2. $y = x^2 + 2x - 1$

3. $y = x^2 - 6x - 3$

4. $y = 3x^2 - 6x - 5$

Example 2 Find the vertex, the equation of the axis of symmetry, and the y -intercept of each graph.



Example 3 Find the vertex, the equation of the axis of symmetry, and the y -intercept of the graph of each function.

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

10. $y = -x^2 + 2x + 1$

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

12. $y = 4x^2 - 8x + 9$

Example 4 Consider each function.

- Determine whether the function has *maximum* or *minimum* value.
- State the maximum or minimum value.
- What are the domain and range of the function?

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

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

15. $y = -3x^2 + 6x + 3$

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

Example 5 Graph each function.

17. $f(x) = -3x^2 + 6x + 3$

18. $f(x) = -2x^2 + 4x + 1$

19. $f(x) = 2x^2 - 8x - 4$

20. $f(x) = 3x^2 - 6x - 1$

Example 6 21. **CCSS REASONING** A juggler is tossing a ball into the air. The height of the ball in feet can be modeled by the equation $y = -16x^2 + 16x + 5$, where y represents the height of the ball at x seconds.

- Graph this equation.
- At what height is the ball thrown?
- What is the maximum height of the ball?

