Practice 5.7: Creating and Graphing Equations Using Standard Form A

Sketch the graph for each of the following quadratic functions.

1. $q(x) = -x^2 - 6x - 8$

2. $f(x) = -3x^2 + 24x - 48$

3. $m(b) = b^2 - 6b + 10$

Find the y-intercept and vertex of the following functions. State whether the vertex is a minimum or maximum point on the graph and explain your reasoning.

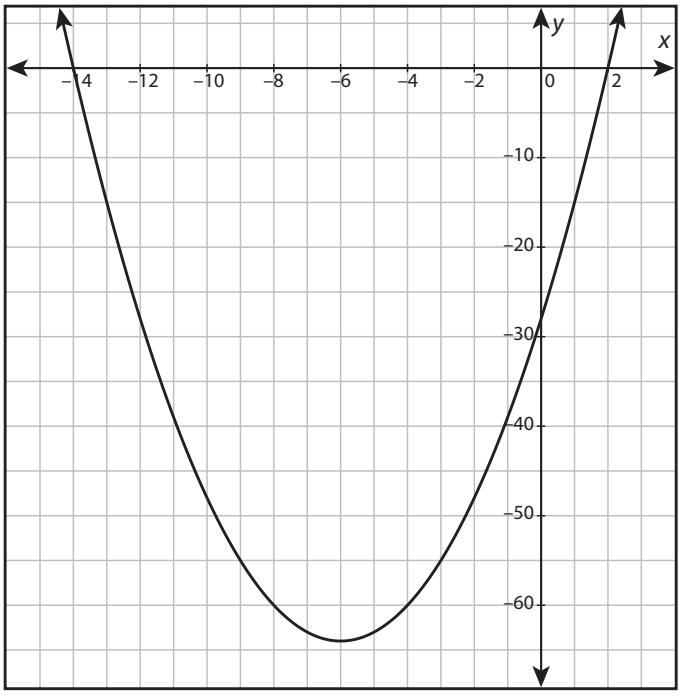
4. $k(h) = h^2 - 4h + 3$

5. $l(d) = d^2 - 6d$

6. $f(x) = -7x^2 - 14x - 6$

Does the following graph represent the given function? Explain your reasoning.

7. $y(x) = x^2 + 12x - 28$



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Use your knowledge of quadratic functions to complete the problems that follow.

8. Create the equation of a quadratic function with a vertex of (–3, 7) and a y-intercept of –2.

9. The path of an arrow shot in the air can be modeled by the function $h(t) = -16t^2 + 144t + 4$, where h is the height, in feet, of the arrow above ground t seconds after it is released. Determine the maximum height that the arrow reaches.

10. The demand, d, for plastic storage containers depends on their price. A retail manager determines that the number of containers she can sell at a price of x dollars each is given by the formula $d(x) = -3x^2 + 220x - 200$. At what price will the demand for the containers be at a maximum?