



2-2 Additional Practice

Standard Form of a Quadratic Function

Find the vertex of a quadratic function written in standard form.

1. $f(x) = 3x^2 + 18x + 32$

Vertex: $(-3, 5)$

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

Vertex: $(-1, -6)$

3. $f(x) = -3x^2 + 18x - 27$

Vertex: $(3, 0)$

Find the vertex, axis of symmetry, and y-intercept of the functions, then sketch the graph.

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

Vertex **$(4, 3)$**

Axis of symmetry **$x = 4$**

Y-intercept **$(0, 19)$**

point symmetric to y-axis $(8, 19)$

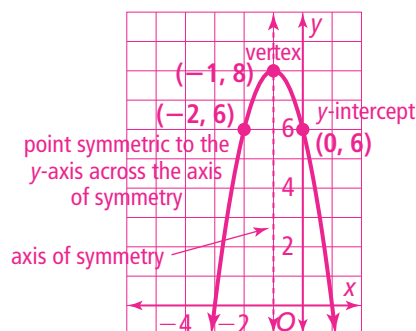
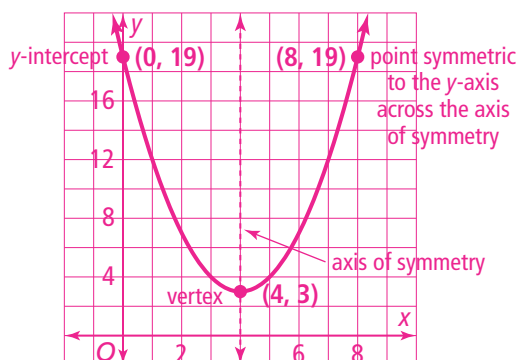
5. $f(x) = -2x^2 - 4x + 6$

Vertex **$(-1, 8)$**

Axis of symmetry **$x = -1$**

Y-intercept **$(0, 6)$**

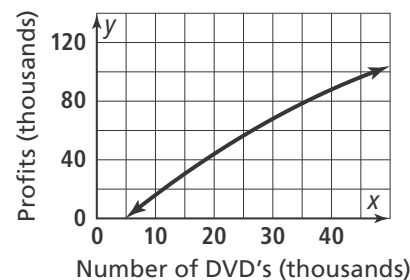
point symmetric to y-axis $(-2, 6)$



Interpret the graph of a quadratic function.

6. A small independent movie company determines the profit P for producing n DVD copies of a recent release is $P = -0.02n^2 + 3.40n - 16$. P is the profit in thousands of dollars and n is in thousands of units.

- a. How many DVDs should the company produce to maximize the profit? **85,000 DVDs**
- b. What will the maximum profit be? **\$128,500**



What is the equation of a parabola that passes through the following points?

7. $(1, -1), (2, -5), (3, -7)$

$f(x) = x^2 - 7x + 5$

8. $(2, -8), (3, -8), (6, 4)$

$f(x) = x^2 - 5x - 2$

9. $(-3, 2), (1, -6), (4, 9)$

$f(x) = x^2 - 7$