Name _____

2-2 Additional Practice

Standard Form of a Quadratic Function

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

1. $f(x) = 3x^2 + 18x + 32$ **2.** $f(x) = x^2 + 2x - 5$ **3.** $f(x) = -3x^2 + 18x - 27$

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

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

Vertex
Axis of symmetry
Y-intercept

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

Vertex
Axis of symmetry
Y-intercept

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.

Number of DVD's (thousands)

a. How many DVDs should the company produce to maximize the profit?

b. What will the maximum profit be?
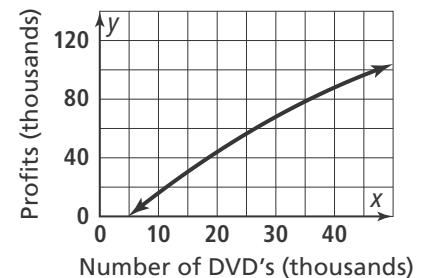
What is the equation of a parabola that passes through the following points?

7. (1, −1), (2, −5), (3, −7)   **8.** (2, −8), (3, −8), (6, 4)   **9.** (−3, 2), (1, −6), (4, 9)

2-2 Additional Practice

Standard Form of a Quadratic Function

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

1. $f(x) = 3x^2 + 18x + 32$ **2.** $f(x) = x^2 + 2x - 5$ **3.** $f(x) = -3x^2 + 18x - 27$

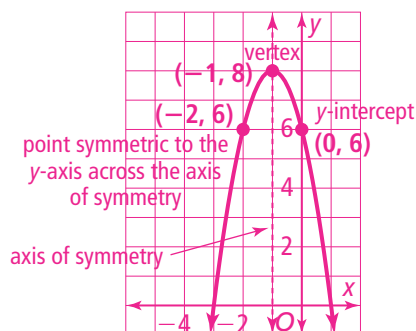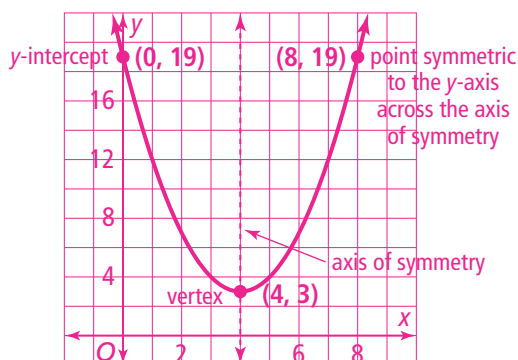**Vertex: (−3, 5)** **Vertex: (−1, −6)** **Vertex: (3, 0)**

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

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

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

Vertex **(4, 3)**
Axis of symmetry **x = 4**
Y-intercept **(0, 19)**
point symmetric to y-axis (8, 19)

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**
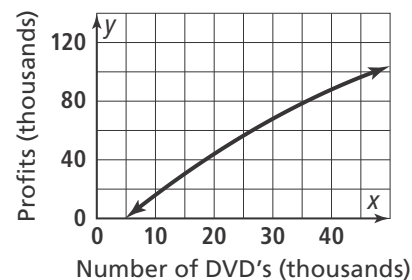
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f(x) = x² − 7x + 5 **f(x) = x² − 5x − 2** **f(x) = x² − 7**