

# 4-1 Practice

## Graphing Quadratic Functions

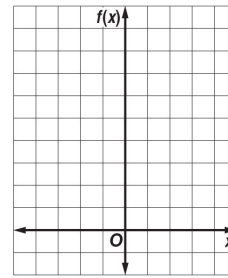
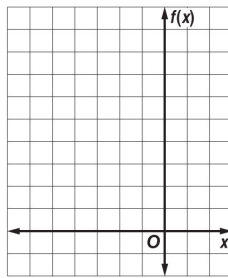
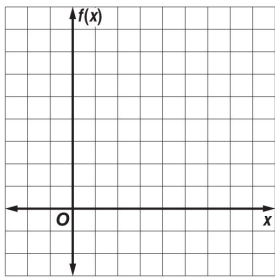
Complete parts a–c for each quadratic function.

- Find the  $y$ -intercept, the equation of the axis of symmetry, and the  $x$ -coordinate of the vertex.
- Make a table of values that includes the vertex.
- Use this information to graph the function.

1.  $f(x) = x^2 - 8x + 15$

2.  $f(x) = -x^2 - 4x + 12$

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



Determine whether each function has a *maximum* or *minimum* value, and find that value. Then state the domain and range of the function.

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

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

6.  $v(x) = -x^2 + 14x - 57$

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

8. **GRAVITATION** From 4 feet above a swimming pool, Susan throws a ball upward with a velocity of 32 feet per second. The height  $h(t)$  of the ball  $t$  seconds after Susan throws it is given by  $h(t) = -16t^2 + 32t + 4$ . For  $t \geq 0$ , find the maximum height reached by the ball and the time that this height is reached.