Name_____ Class _____ Date_____

# 4-1 Practice

*Form G*

Quadratic Functions and Transformations

**Describe how to translate $f(x) = x^2$ to the given function.**

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

**8.** $f(x) = (x - 3)^2$

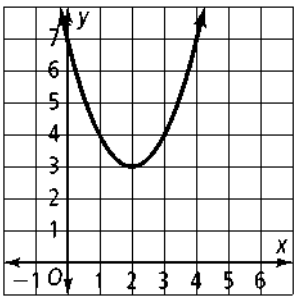
**Identify the vertex, axis of symmetry, the maximum or minimum value, and the domain and the range of each function.**

**9.** $y = (x - 2)^2 + 3$

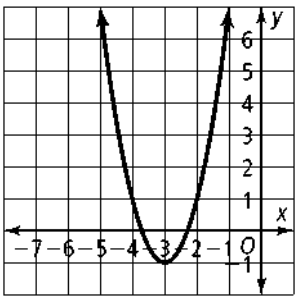
**10.** $f(x) = -0.2(x + 3)^2 + 2$

**Write a quadratic function to model each graph.**

**13.**




**14.**




**Describe how to transform the parent function $y = x^2$ to the graph of each function below.**

**15.** $y = 3(x + 2)^2$

**16.** $y = -(x + 5)^2 + 1$

**17.** $y = \frac{1}{2}(x+4)^2 - 2$

**Write the equation of each parabola in vertex form.**

**19.** vertex (3, –2), point (2, 3)

**20.** vertex $\left(\frac{1}{2}, 1\right)$, point (2, –8)

**21.** vertex (–4, –24), point (–5, –25)

**24.** The diagram shows the path of a model rocket launched from the ground. It reaches a maximum altitude of 384 ft when it is above a location 16 ft from the launch site. What quadratic function models the height of the rocket?