NAME _____ DATE _____

Practice 28

FOR USE WITH SECTION 5.3

For each equation in Exercises 1–9.

a. Find the *x*–intercept(s).
b. Find the vertex.
c. Sketch the graph.

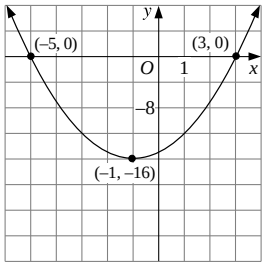
1. $y = (x - 5)(x + 1)$ **2.** $y = -(x + 2)(x + 4)$ **3.** $y = 2(x - 3)(x + 3)$

4. $y = -3(x + 2)(x + 2)$ **5.** $y = \frac{1}{2}(x + 4)(x - 2)$ **6.** $y = -\frac{1}{3}(x - 1)(x - 5)$

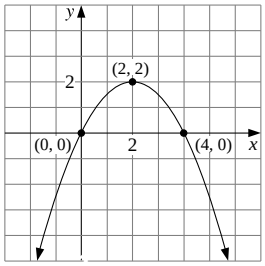
7. $y = (4x - 8)(x + 2)$ **8.** $y = (x + 5)(2x - 2)$ **9.** $y = (0.4x - 2)(x + 1)$

Write an equation for each graph.

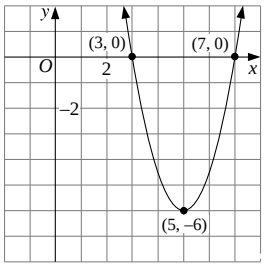
10.



11.



12.



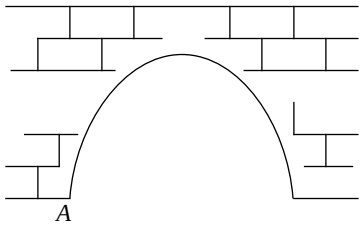
13. A water taxi charges \$6.00 per person for a short trip and has 56 regular customers. A market survey has revealed that for every \$.50 rise in the fare, the taxi will lose 4 customers.

a. Write a quadratic function that gives the amount A taken in each day by the taxi as a function of x, the number of \$.50 price increases.

b. What fare maximizes the amount taken in?

c. What is the amount taken in when this fare is in effect?

14. A stone bridge over water has an arch in the shape of a parabola. The arch is 20 ft wide at its lowest point, and the highest point of the arch is 12.5 ft above water.



a. Suppose you set up a coordinate plane with the origin at the lower left-hand corner of the arch (point A). What is the other x -intercept of the arch? What are the coordinates of the vertex of the arch?

b. Write an equation for the arch.