Practice 27 ···
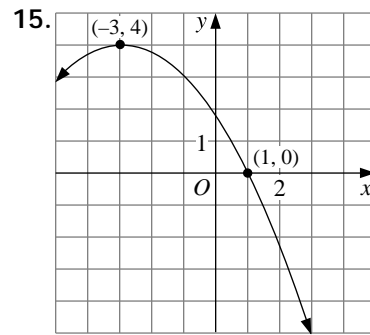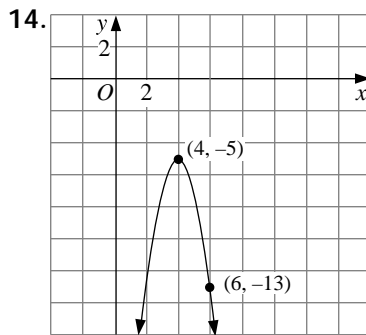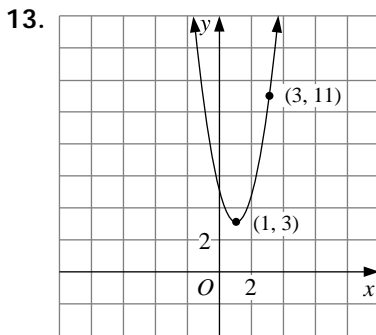
FOR USE WITH SECTION 5.2

What is the *maximum value* or *minimum value* for each function?

1. $f(x) = (x - 5)^2 + 2$ **2.** $f(x) = -5(x + 3)^2 + 8$ **3.** $f(x) = -2x^2 - 9$

4. $f(x) = 0.7(x + 1)^2 - 6$ **5.** $f(x) = \frac{1}{4}(x - 2)^2 + 3$ **6.** $f(x) = 3.5(x - 1)^2 - 4$

Describe the graph of each function. Make a sketch of each graph.

7. $y = (x + 2)^2 - 5$ **8.** $y = -x^2 + 3$ **9.** $y = 2(x - 1)^2 - 6$

10. $y = \frac{1}{3}(x - 3)^2 + 4$ **11.** $y = -1.5(x - 4)^2 - 2$ **12.** $y = 4(x + 3)^2 - 8$

Write an equation in the form $y = a(x - h)^2 + k$ for each parabola shown.

13.

14.

15.

16. The table below compares the governors' salary in selected states with the population of the state in 1990.

State	HI	NM	KS	CT	AL	WI	VA	NC
x = Population (millions)	1.1	1.5	2.5	3.3	4.0	4.9	6.2	6.6
y = Governor's salary ($1000s)	94.8	90.0	76.5	78.0	81.1	92.3	110.0	123.3

    a. Let $u = x - 3$ and let $v = y - 76$. Make up a table of the values of v and the corresponding values of u^2. Find the average ratio $\frac{v}{u^2}$. What equation do you get when you substitute $x - 3$ for u and $y - 76$ for v?

    b. Graph your equation from part (a).

17. Open-ended Problem Comment on the reasonableness of the model for the salary data in Exercise 16.