NAME _____ DATE _____

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.** $f(x) = 3.5(x - 1)^2 - 4$

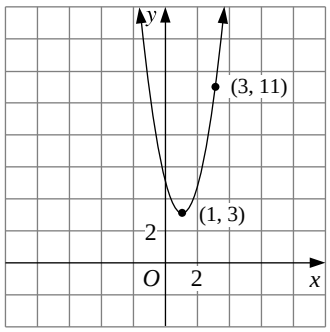
Describe the graph of each function. Make a sketch of each graph.

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

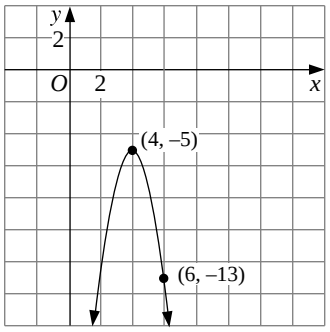
10. $y = \frac{1}{3}(x - 3)^2 + 4$ **11.** $y = -1.5(x - 4)^2 - 2$ **12.** $y = 4(x + 3)^2 - 8$

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

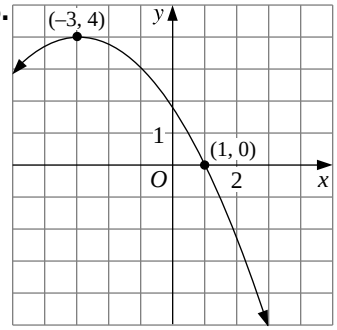
13.



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.