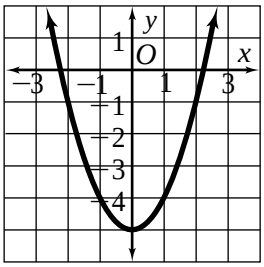
Name _____ Class _____ Date _____

Practice 5-2

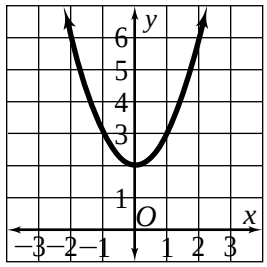
Mixed Exercises

Write the equation of the parabola shown.

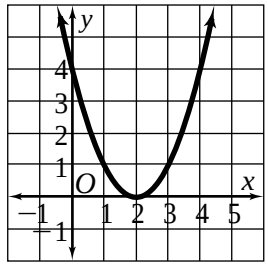
1.



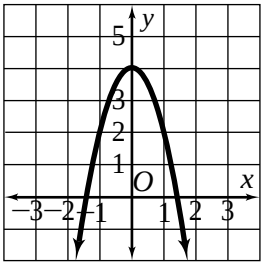
2.



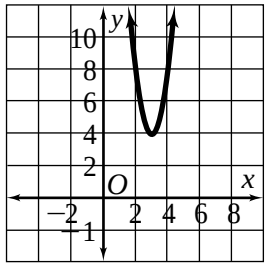
3.



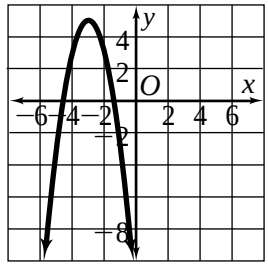
4.



5.



6.



Sketch each parabola. Label the vertex and axis of symmetry.

7. $y = (x - 2)^2 - 3$

8. $y = (x - 6)^2 + 6$

9. $y = \frac{1}{2}(x - 1)^2 - 1$

10. $y = 8(x + 1)^2 - 2$

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

12. $y = 3(x + 2)^2 + 4$

13. $y = \frac{1}{8}(x + 1)^2 - 1$

14. $y = \frac{1}{2}(x + 6)^2 - 2$

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

16. $y = 4(x - 2)^2$

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

18. $y = 4(x - 1)^2 - 2$

Find the vertex and axis of symmetry for each parabola.

19. $y = 3x^2$

20. $y = -x^2 + 2$

21. $y = x^2 - 5x + 4$

22. $y = x^2 - 8x + 7$

23. $y = \frac{1}{2}x^2 - x - 2$

24. $y = x^2 - 4x + 3$

25. The profit p of the barber each week depends on his charge c per haircut. It is modeled by the equation $p = -200(c - 6)^2 + 2500$. Sketch the graph of the equation. What price should he charge for the largest profit?

26. The traffic count in a subdivision beside the mall (in cars per hour) was 109 at 3 A.M., 469 at 7 A.M., and it reaches its peak of 550 cars at 10 A.M. Find an equation relating the traffic count c to the time t.

27. A pen is to be constructed alongside a barn using 120 ft of fencing. What should the dimensions of the pen be to maximize its area?