Name _____ Date _____

LESSON 4.9

Practice B *continued*

For use with pages 286–293

Match the system of inequalities with its graph.

17. $y > x^2 - 2x - 1$

$y < x^2 + 3x + 1$

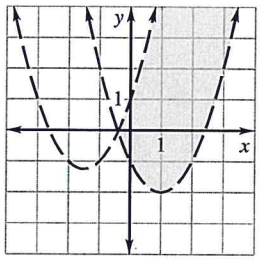
18. $y \leq -2x^2 - x + 2$

$y > \frac{2}{3}x^2 - 3$

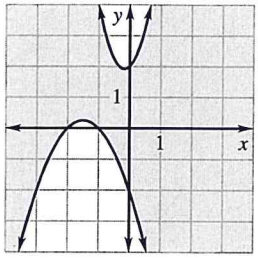
19. $y \leq 3x^2 + x + 2$

$y \geq -x^2 - 3x - 2$

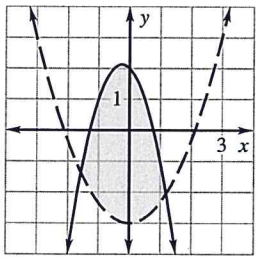
A.



B.



C.



Graph the system of inequalities.

20. $y \geq x^2 + 2x - 3$

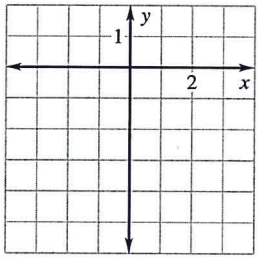
$y < -x^2 - x - 2$

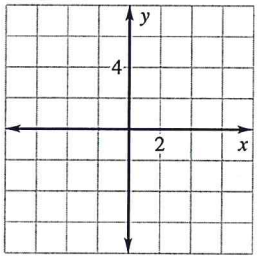
21. $y \leq -\frac{1}{2}x^2 + 2x + 1$

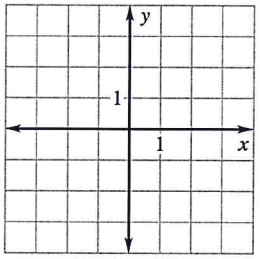
$y \leq -\frac{1}{2}x^2 - 2x + 1$

22. $y < x^2 + 2x - 2$

$y < x^2 - 2x - 2$







Solve the inequality algebraically.

23. $x^2 + x - 12 > 0$

24. $x^2 - 3x - 18 \leq 0$

25. $2x^2 + 13x + 6 < 0$

Tell whether the inequality is *always*, *sometimes*, or *never* true for real values of *x*.

26. $x^2 - 4x + 2 \leq 0$

27. $(x + 4)(x - 4) < 0$

In Exercises 28–29, use the following information.

Football The path of a football kicked from the ground can be modeled by $h = -0.02x^2 + 1.2x$ where h is the height (in yards) and x is the horizontal distance (in yards) from where the ball is kicked. The crossbar on a field goal post is 10 feet above the ground.

28. Write an inequality to find the values of x where the ball is high enough to go over the crossbar. Solve the inequality.

29. A player attempts to kick a field goal from 52 yards away. Will the ball have enough height to go over the crossbar from this distance?

Name _____ Date _____

LESSON 4.10

Practice B

For use with pages 294–301

Write a quadratic function in vertex form whose graph has the given vertex and passes through the given point.

1. vertex: (0, 0)
   point: (2, 4)
2. vertex: (2, 1)
   point: (4, 5)
3. vertex: (2, −4)
   point: (0, 0)
4. vertex: (−4, −2)
   point: (−3, −1)
5. vertex: (3, −2)
   point: (7, 6)
6. vertex: (4, −5)
   point: (1, 13)

Write a quadratic function in intercept form whose graph has the given *x*-intercepts and passes through the given point.

7. *x*-intercepts: 2, 3
   point: (4, 2)
8. *x*-intercepts: −4, 1
   point: (−3, −4)
9. *x*-intercepts: −5, 5
   point: (6, 11)
10. *x*-intercepts: −7, −2
    point: (−5, −6)
11. *x*-intercepts: 0, 4
    point: (−1, 20)
12. *x*-intercepts: −3, −2
    point: (−4, −6)

Write a quadratic function in standard form whose graph passes through the given points.

13. (1, −2), (−2, 1), (3, 6)
14. (2, 6), (−2, −2), (1, 1)
15. (−2, 7), (−1, 3), (3, 7)
16. (1, 0), (2, 4), (0, 2)
17. (2, −4), (3, −7), (1, −3)
18. (−1, −2), (1, −4), (2, 1)

In Exercises 19 and 20, use the following information.

Population Model The following table shows the population of a town from 1996 to 2004. Assume that t is the number of years since 1996 and P is measured in thousands of people.

Year, *t*	0	1	2	3	4	5	6	7	8
Population, *P*	22.8	25.0	26.5	27.1	27.8	28.1	27.9	26.9	26.1

19. Use a graphing calculator to find the best-fitting quadratic model for the data.
20. Using the model, what is the population in 2007?

In Exercises 21 and 22, use the following information.

Operating Costs The following table shows the operating costs of a small business from 2000 to 2005. Assume that t is the number of years since 2000 and C is the cost in thousands of dollars.

Year, *t*	0	1	2	3	4	5
Operating costs, *C*	2.3	2.6	3.1	3.3	4.0	5.2

21. Use a graphing calculator to find the best-fitting quadratic model for the data.
22. Using the model, how much are the operating costs in 2008?