4.9 EXERCISES

HOMEWORK KEY

= **WORKED-OUT SOLUTIONS** on p. WS1 for Exs. 17, 39, and 73

= **TAKS PRACTICE AND REASONING** Exs. 44, 45, 68, 73, 78, and 79

= **MULTIPLE REPRESENTATIONS** Ex. 74

SKILL PRACTICE

1. **VOCABULARY** Give an example of a quadratic inequality in one variable and an example of a quadratic inequality in two variables.

2. **WRITING** *Explain* how to solve $x^2 + 6x - 8 < 0$ using a table, by graphing, and algebraically.

EXAMPLE 1 on p. 300 for Exs. 3–19

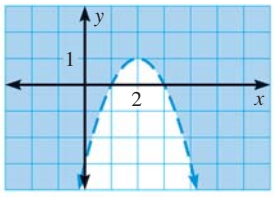
MATCHING INEQUALITIES WITH GRAPHS **Match the inequality with its graph.**

3. $y \leq x^2 + 4x + 3$

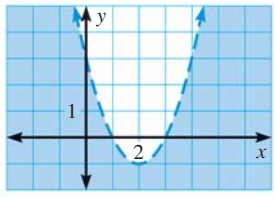
4. $y > -x^2 + 4x - 3$

5. $y < x^2 - 4x + 3$

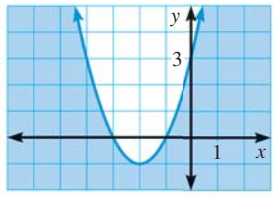
A.



B.



C.



GRAPHING QUADRATIC INEQUALITIES **Graph the inequality.**

6. $y < -x^2$

7. $y \geq 4x^2$

8. $y > x^2 - 9$

9. $y \leq x^2 + 5x$

10. $y < x^2 + 4x - 5$

11. $y > x^2 + 7x + 12$

12. $y \leq -x^2 + 3x + 10$

13. $y \geq 2x^2 + 5x - 7$

14. $y \geq -2x^2 + 9x - 4$

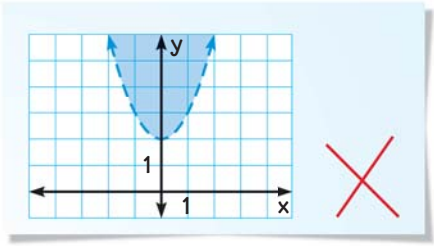
15. $y < 4x^2 - 3x - 5$

16. $y > 0.1x^2 - x + 1.2$

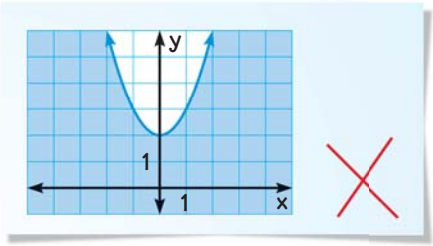
17. $y \leq -\frac{2}{3}x^2 + 3x + 1$

ERROR ANALYSIS **Describe and correct the error in graphing $y \geq x^2 + 2$.**

18.



19.



EXAMPLE 3 on p. 301 for Exs. 20–25

GRAPHING SYSTEMS **Graph the system of inequalities.**

20. $y \geq 2x^2$
$y < -x^2 + 1$

21. $y > -5x^2$
$y > 3x^2 - 2$

22. $y \geq x^2 - 4$
$y \leq -2x^2 + 7x + 4$

23. $y \leq -x^2 + 4x - 4$
$y < 2x^2 + x - 8$

24. $y > 3x^2 + 3x - 5$
$y < -x^2 + 5x + 10$

25. $y \geq x^2 - 3x - 6$
$y \geq 2x^2 + 7x + 6$

EXAMPLE 4 on p. 302 for Exs. 26–34

SOLVING USING A TABLE **Solve the inequality using a table.**

26. $x^2 - 5x < 0$

27. $x^2 + 2x - 3 > 0$

28. $x^2 + 3x \leq 10$

29. $x^2 - 2x \geq 8$

30. $-x^2 + 15x - 50 > 0$

31. $x^2 - 10x < -16$

32. $x^2 - 4x > 12$

33. $3x^2 - 6x - 2 \leq 7$

34. $2x^2 - 6x - 9 \geq 11$