EXAMPLE 5 on p. 302 for Exs. 35–43

SOLVING BY GRAPHING **Solve the inequality by graphing.**

35. $x^2 - 6x < 0$

36. $x^2 + 8x \leq -7$

37. $x^2 - 4x + 2 > 0$

38. $x^2 + 6x + 3 > 0$

39. $3x^2 + 2x - 8 \leq 0$

40. $3x^2 + 5x - 3 < 1$

41. $-6x^2 + 19x \geq 10$

42. $-\frac{1}{2}x^2 + 4x \geq 1$

43. $4x^2 - 10x - 7 < 10$

44. **TAKS REASONING** What is the solution of $3x^2 - x - 4 > 0$?

Ⓐ $x < -1$ or $x > \frac{4}{3}$

Ⓑ $-1 < x < \frac{4}{3}$

Ⓒ $x < -\frac{4}{3}$ or $x > 1$

Ⓓ $1 < x < \frac{4}{3}$

45. **TAKS REASONING** What is the solution of $2x^2 + 9x \leq 56$?

Ⓐ $x \leq -8$ or $x \geq 3.5$

Ⓑ $-8 \leq x \leq 3.5$

Ⓒ $x \leq 0$ or $x \geq 4.5$

Ⓓ $0 \leq x \leq 4.5$

EXAMPLE 7 on p. 303 for Exs. 46–57

SOLVING ALGEBRAICALLY **Solve the inequality algebraically.**

46. $4x^2 < 25$

47. $x^2 + 10x + 9 < 0$

48. $x^2 - 11x \geq -28$

49. $3x^2 - 13x > 10$

50. $2x^2 - 5x - 3 \leq 0$

51. $4x^2 + 8x - 21 \geq 0$

52. $-4x^2 - x + 3 \leq 0$

53. $5x^2 - 6x - 2 \leq 0$

54. $-3x^2 + 10x > -2$

55. $-2x^2 - 7x \geq 4$

56. $3x^2 + 1 < 15x$

57. $6x^2 - 5 > 8x$

58. **GRAPHING CALCULATOR** In this exercise, you will use a different graphical method to solve Example 6 on page 303.

a. Enter the equations $y = 7.51x^2 - 16.4x + 35.0$ and $y = 100$ into a graphing calculator.

b. Graph the equations from part (a) for $0 \leq x \leq 9$ and $0 \leq y \leq 300$.

c. Use the *intersect* feature to find the point where the graphs intersect.

d. During what years was the number of participating teams greater than 100? *Explain* your reasoning.

CHOOSING A METHOD **Solve the inequality using any method.**

59. $8x^2 - 3x + 1 < 10$

60. $4x^2 + 11x + 3 \geq -3$

61. $-x^2 - 2x - 1 > 2$

62. $-3x^2 + 4x - 5 \leq 2$

63. $x^2 - 7x + 4 > 5x - 2$

64. $2x^2 + 9x - 1 \geq -3x + 1$

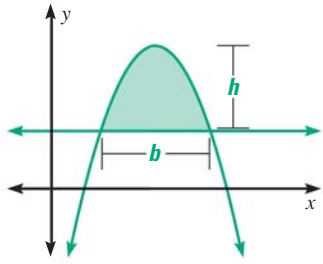
65. $3x^2 - 2x + 1 \leq -x^2 + 1$

66. $5x^2 + x - 7 < 3x^2 - 4x$

67. $6x^2 - 5x + 2 < -3x^2 + x$

68. **TAKS REASONING** Write a quadratic inequality in one variable that has a solution of $x < -2$ or $x > 5$.

69. **CHALLENGE** The area A of the region bounded by a parabola and a horizontal line is given by $A = \frac{2}{3}bh$ where b and h are as defined in the diagram. Find the area of the region determined by each pair of inequalities.



a. $y \leq -x^2 + 4x$
$y \geq 0$

b. $y \geq x^2 - 4x - 5$
$y \leq 3$