

40.  **TAKS REASONING** What is (are) the solution(s) of $|3x + 7| = 5x$?

- (A) $-4, -\frac{2}{3}$ (B) $-\frac{7}{8}, \frac{7}{2}$ (C) $\frac{7}{8}, \frac{7}{2}$ (D) $\frac{7}{2}$

ERROR ANALYSIS Describe and correct the error in solving the equation.

41.


$$|5x - 9| = x + 3$$

$$5x - 9 = x + 3 \text{ or } 5x - 9 = -x + 3$$

$$4x - 9 = 3 \quad \text{or} \quad 6x - 9 = 3$$

$$4x = 12 \quad \text{or} \quad 6x = 12$$

$$x = 3 \quad \text{or} \quad x = 2$$

The solutions are 3 and 2. 

42.


$$|n - 7| = 3n - 1$$

$$n - 7 = 3n - 1 \text{ or } n - 7 = -3n + 1$$

$$-7 = 2n - 1 \text{ or } 4n - 7 = 1$$

$$-6 = 2n \quad \text{or} \quad 4n = 8$$

$$-3 = n \quad \text{or} \quad n = 2$$

The solutions are -3 and 2 . 


EXAMPLES
4 and 5

on pp. 53–54
for Exs. 43–63

SOLVING INEQUALITIES Solve the inequality. Then graph the solution.

43. $|j| \leq 5$ 44. $|k| > 4$ 45. $|m - 2| < 7$ 46. $|n - 11| \geq 1$
 47. $|d + 4| \geq 3$ 48. $|f + 6| < 2$ 49. $|g - 1| > 0$ 50. $|h + 10| \leq 10$
 51. $|3w - 15| < 30$ 52. $|2x + 6| \geq 10$ 53. $|4y - 9| \leq 7$ 54. $|5z + 1| > 14$
 55. $|16 - p| > 3$ 56. $|24 - q| \leq 11$ 57. $|7 - 2r| < 19$ 58. $|19 - 5t| > 7$
 59. $|\frac{1}{2}x - 10| \leq 4$ 60. $|\frac{1}{3}m - 15| < 6$ 61. $|\frac{1}{7}y + 2| - 5 > 3$ 62. $|\frac{2}{5}n - 8| + 4 \geq 12$

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63.  **TAKS REASONING** What is the solution of $|6x - 9| \geq 33$?

- (A) $-4 \leq x \leq 7$ (B) $-7 \leq x \leq 4$
 (C) $x \leq -4$ or $x \geq 7$ (D) $x \leq -7$ or $x \geq 4$

64.  **TAKS REASONING** Which absolute value inequality represents the graph shown below?



- (A) $-1 < |x| < 5$ (B) $|x + 2| < 3$ (C) $|x - 2| < 3$ (D) $|x - 2| < 5$

65. **REASONING** For the equation $|ax + b| = c$ (where a , b , and c are real numbers and $a \neq 0$), describe the value(s) of c that yield two solutions, one solution, and no solution.

SOLVING INEQUALITIES Solve the inequality. Then graph the solution.

66. $|x + 1| \geq -16$ 67. $|2x - 1| < -25$ 68. $|7x + 3| \leq 0$ 69. $|x - 9| > 0$

CHALLENGE Solve the inequality for x in terms of a , b , and c . Assume a , b , and c are real numbers.

70. $|ax + b| < c$ where $a > 0$ 71. $|ax + b| \geq c$ where $a > 0$
 72. $|ax + b| \leq c$ where $a < 0$ 73. $|ax + b| > c$ where $a < 0$