

Chapter 3 Cumulative Review (continued)

Write the sentence as an inequality.

25. A number n is at least 20.
 26. The number 50 is no more than a number h times 2.

Solve the inequality. Graph the solution.

27. $b + 2 - 1 \geq 11$ 28. $56 - (-t) > -38 + 7$ 29. $5 - 7z + 8z < 10 - 2$

Write the sentence as an inequality. Then solve the inequality.

30. The difference of 5 and a number is at least 13.
 31. A number plus 14 is no more than 2.

Solve the inequality. Graph the solution, if possible.

32. $8w + 7 < 3w - 3$ 33. $4(g - 2) > 4g$ 34. $7(h - 1) \geq -7(8 - h)$
 35. $-3 < 9 + 2n < 23$ 36. $5w > 25$ and $7w \leq 42$ 37. $2t + 7 \geq 27$ or $3 + 3t \leq 30$

Solve the inequality. Graph the solution, if possible.

38. $|2x - 77| < -55$ 39. $|3w - 5| + 6 \geq 10$ 40. $|5 + 10x| < 25$

Determine whether the relation is a function. Explain.

41. $(2, 3), (4, 5), (-4, 7), (2, 8), (9, 10)$ 42. $(-5, 2), (-3, 8), (0, 1), (3, 7), (5, 11)$
 43. $(4, 3), (7, 3), (9, 3), (-2, 3), (3, 3)$ 44. $(1, 4), (7, -11), (0, -22), (1, 8), (-1, 67)$

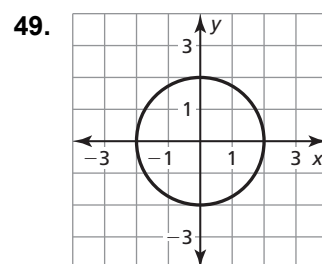
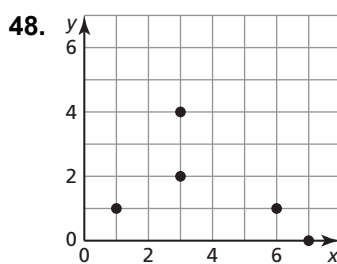
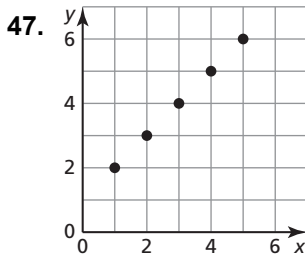
45.

x	0	1	2	3
y	-2	0	2	4

46.

Input	-2	0	2	-2
Output	10	7	4	1

Find the domain and range of each relation, and determine whether or not the graph represents a function.



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3****Cumulative Review (continued)**

50. The function $y = -3x + 44$ represents the amount of money left in your school lunch account y (in dollars) after x days.
- Identify the independent and dependent variables.
 - There are 10 days left in the school year. Find the domain and range of the functions.

Determine whether the table represents a *linear* or *nonlinear* function. Explain.

51.

x	0	1	2	3
y	7	11	15	19

52.

Input	2	4	6	8
Output	1	2	8	16

Determine whether the equation represents a *linear* or *nonlinear* function. Explain.

53. $y = x^4 - 2$

54. $2x + 3y = 5$

55. $y = 2x(2 - x)$

Evaluate the function when $x = -3, 0,$ and 4 .

56. $f(x) = x - 5$

57. $g(x) = -5x + 7$

58. $h(x) = 3 - 2x - 12$

Find the value of x so that the function has the given value.

59. $f(x) = 4x; f(x) = -32$

60. $r(x) = \frac{1}{3}x + 2; r(x) = 4$

61. $q(x) = 2x + 1; q(x) = 17$

Graph the linear function.

62. $f(x) = 2x$

63. $w(x) = \frac{1}{3}x - 2$

64. $h(x) = 4 - 7x$

65. The function $f(x) = \frac{108}{x}, x \neq 0$ represents the average speed of a car that took a 108-mile trip in x hours.

- What was the average speed of the car if the trip took 3 hours?
- How long did the trip take if the average speed was 54 miles per hour?

Find the x - and y -intercepts of the graph of the linear equation.

66. $2x + 4y = 8$

67. $2x - 7y = -21$

68. $-x + 3y = 13$

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Use intercepts to graph the linear equation. Label the points corresponding to the intercepts.

69. $-\frac{2}{3}x + y = 4$

70. $-2x + 2y = 10$

71. $4x - 3y = -7$

72. You are ordering warm-up clothes for the basketball team. The mesh shirts cost \$16 each and the cotton shirts cost \$8 each. You have a budget of \$240 for the shirts. The equation $16x + 8y = 240$ models the total cost, where x is the number of mesh shirts and y is the number of cotton shirts.

- a. Graph the equation. Interpret the intercepts.
- b. Four players decide they want the cotton shirts. How many mesh shirts can you order?

The following points lie on a line. Find the slope of the line.

73. $(1, 3), (2, 6), (3, 9), (4, 12), (5, 15)$

74. $(-2, -2), (0, 2), (2, 6), (4, 10), (6, 14)$

Find the slope and y -intercept. Then graph the linear equation.

75. $y = \frac{1}{3}x - 2$

76. $y = -3x$

77. $4x - 2y = 8$

Use the graphs of f and g to describe the transformation from the graph of f to the graph of g .

78. $f(x) = 3x - 1; g(x) = \frac{1}{3}x - 1$

79. $f(x) = 2x + 4; g(x) = 2x - 4$

Write a function g in terms of f so that the statement is true.

80. The graph of g is a vertical stretch by a factor of 3 of the graph of f .

81. The graph of g is a horizontal translation 4 units right of the graph of f .

Graph the function. Compare the graph to the graph of $f(x) = |x|$. Describe the domain and range.

82. $t(x) = |x| + 1$

83. $r(x) = |x - 3|$

84. $h(x) = -\frac{1}{4}|x|$

Graph and compare the two functions.

85. $f(x) = |x + 2|; g(x) = |2x + 2|$

86. $h(x) = |x - 1| - 2; t(x) = |3x - 1| - 2$