Name _____ Date _____

Cumulative Test 1

Evaluate the expression.

1. $7 + 6^2 \div 3$

2. $4 \cdot 5^2 - 18$

3. $4[32 - (17 - 12)^2]$

4. $\frac{2}{3}[(5 + 3)^2 - 31]$

5. $3(5m - 4)$ when $m = -2$

6. $9x^2 - 4$ when $x = 3$

Write an algebraic expression, an equation, or an inequality.

7. The sum of 5 times a number x and 17

8. The difference of 21 and the product of 5 and a number y is less than 7.

9. The quotient of 75 and the quantity of a number z and 2 is 25.

Check whether the given number is a solution of the equation or inequality.

10. $5c - 13 = 12; 2$

11. $21 - 2d < 7; 6$

12. A family goes to an amusement park. Adult tickets cost $21. Children under 10 years of age pay $15. Write an algebraic expression for the total cost. Then find the total cost of 4 adult tickets and 3 children's tickets.

Perform the indicated operation. Write the answer with the correct number of significant digits.

13. 17.497 km + 20.82 km

14. 47.725 ft^2 8.3 ft

Approximate the square root to the nearest integer.

15. $\sqrt{125}$

16. $\sqrt{200}$

17. $-\sqrt{47}$

18. Order the numbers from least to greatest: $-1.6, \sqrt{4}, 0, 3.1, -\sqrt{5}$.

Solve the equation.

19. $\frac{m}{-6} = 8$

20. $17 = 4x - 7$

21. $9 - \frac{n}{3} = 28$

22. $16w - 10w + 13 = -5$

23. $4h - 13 = 7h + 2$

24. $\frac{2}{5}(25z - 30) = \frac{3}{4}(12z + 16)$

The perimeter *P* of a rectangle is given by the formula $P = 2\ell + 2w$ where ℓ is the length and *w* is the width.

25. Solve the formula for ℓ.

26. Use the rewritten formula to find the length of a rectangle with a width of 9 inches and a perimeter of 40 inches.

Answers

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

20. _____

21. _____

22. _____

23. _____

24. _____

25. _____

26. _____

Name _____ Date _____

Cumulative Test 1 *continued*

Solve the proportion.

27. $\frac{x}{8} = \frac{12}{32}$ **28.** $\frac{12}{3w} = \frac{36}{63}$ **29.** $\frac{21}{15} = \frac{3k - 2}{5}$

30. A scale drawing for a new city library shows a rectangular Children's Reading Room with a length of $5\frac{1}{4}$ inches and a width of $3\frac{1}{2}$ inches. The scale on the drawing is 1 inch : 4 feet. What will be the actual length and width of the room when the library is built?

Write the equation so that *y* is a function of *x*.

31. $-12x + 3y = 15$ **32.** $5x = -10y + 30$

Find the slope of the line that passes through the points.

33. $(-7, 3)$ and $(3, 8)$ **34.** $(-2, -9)$ and $(-5, 6)$

Identify the slope and y-intercept of the line with the given equation.

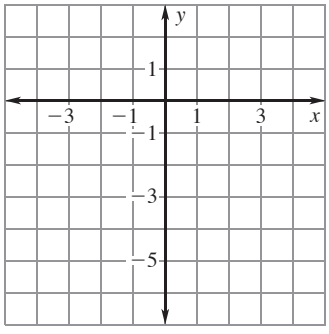
35. $y = -\frac{4}{5}x + 9$ **36.** $4x - 7y = 21$

Tell whether the equation represents direct variation. If so, identify the constant of variation.

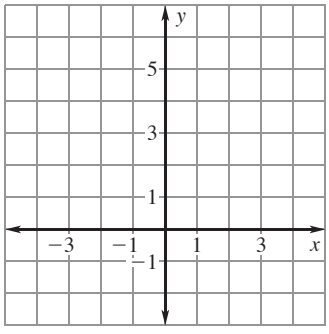
37. $2x - \frac{1}{5}y = 0$ **38.** $3y = 5 - 4x$

Graph the equation.

39. $y = \frac{1}{4}x - 5$



40. $2x + 5y = 20$



41. The price p (in dollars) varies directly with the number of admissions to a museum. The museum charges \$12 for 5 student admissions. Write a direct variation equation that relates p and a. Then find the total admission price for 30 students.

Answers

27. _____

28. _____

29. _____

30. _____

_____

31. _____

32. _____

33. _____

34. _____

35. _____

36. _____

37. _____

38. _____

39. _____

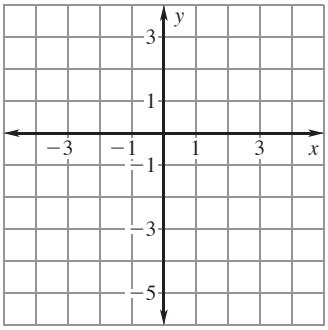
40. _____

41. _____

Name _____ Date _____

Cumulative Test 1 *continued*

42. Graph the function $h(x) = x - 4$. *Compare* the graph with the graph of $f(x) = x$.



Write an equation in slope-intercept form of the line with the given characteristics.

43. slope 3; y-intercept 5

44. $m = -2$; passes through $(-1, 5)$

45. passes through $(3, 2)$ and $(-5, -8)$

46. perpendicular to $y = -3x + 1$; passes through $(2, 2)$

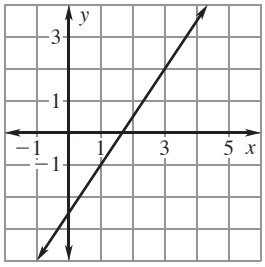
47. slope $-\frac{3}{2}$; y-intercept 1

48. $m = 4$; passes through $(-3, -2)$

49. passes through $(-2, 4)$ and $(-5, 7)$

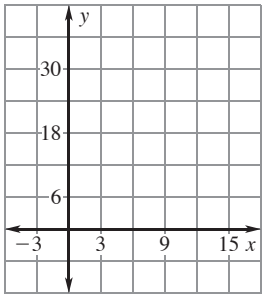
50. parallel to $y = \frac{3}{5}x - \frac{1}{5}$; passes through $(-2, 0)$

51. Write an equation in standard form of the line shown.



52. Make a scatter plot of the data in the table below. Draw a line of fit. And then write an equation of the line.

x	0	3	6	9	12
y	−2	8	14	24	36



Answers

42. _____

_____

_____

_____

_____

43. _____

44. _____

45. _____

46. _____

47. _____

48. _____

49. _____

50. _____

51. _____

52. _____

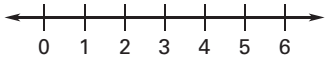
_____

Name _____ Date _____

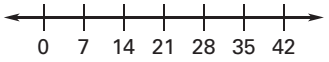
Cumulative Test 1 *continued*

Solve the inequality, if possible. Graph your solution.

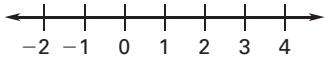
53. $x + 5.1 \geq 9.4$



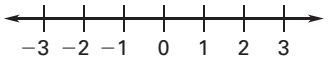
54. $\frac{x}{-7} < -3$



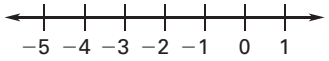
55. $5 + 2x \leq -4x + 23$



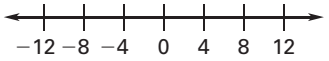
56. $-5 < 3x + 1 < 4$



57. $-2x > 9$ *or* $4x + 7 > 9$



58. $|x + 1| - 3 > 8$

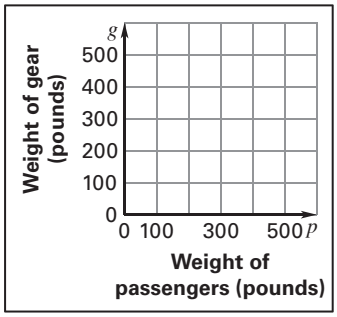


Solve the equation, if possible.

59. $3|x - 2| + 2 = 17$

60. $7|4x + 2| + 6 = 4$

61. The sum of the weight w (in pounds) of passengers p and gear g in a canoe can be no more than 500 pounds. Write and graph an inequality that describes the possible weights of the people and the gear. Identify and interpret one of the solutions.



Solve the linear system.

62. $2x + 5y = -16$
$6x + y = -20$

63. $7x + 4y = 26$
$3x - 8y = -18$

64. $5x + 3y = 19$
$2y = 5x + 21$

65. $3x - 9y = 3$
$5x - 8y = 12$

Tell whether the linear system has *one solution*, *no solution*, or *infinitely many solutions*.

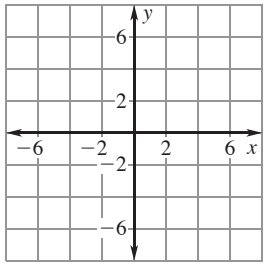
66. $4x - 3y = 6$
$8x = 6y + 10$

67. $3x + 7y = 8$
$21y = -9x + 24$

68. Graph the system of linear inequalities.

$y > \frac{4}{7}x - 2$

$y < 3x + 4$



Answers

53. _____

_____

54. _____

_____

55. _____

_____

56. _____

_____

57. _____

_____

58. _____

_____

59. _____

60. _____

61. _____

_____

_____

62. _____

63. _____

64. _____

65. _____

66. _____

67. _____

68. _____

Answers for Cumulative Test 1

1. 19 **2.** 82 **3.** 28 **4.** 22 **5.** -42 **6.** 77

7. $5x + 17$ **8.** $21 - 5y < 7$ **9.** $\frac{75}{z+2} = 25$

10. solution **11.** not a solution

12. $21a + 15c$; \$129 **13.** 38.32 km **14.** 5.8 ft

15. 11 **16.** 14 **17.** -7

18. $-\sqrt{5}, -1.6, 0, \sqrt{4}, 3.1$ **19.** -48

20. 6 **21.** -57 **22.** -3 **23.** -5 **24.** 24

25. $\ell = \frac{P - 2w}{2}$ **26.** 11 in. **27.** 3 **28.** 7 **29.** 3

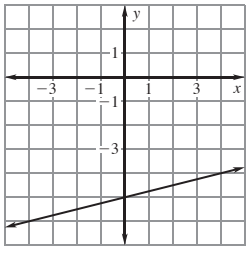
30. length: 21 ft, width: 14 ft **31.** $y = 4x + 5$

32. $y = -\frac{1}{2}x + 3$ **33.** $\frac{1}{2}$ **34.** -5

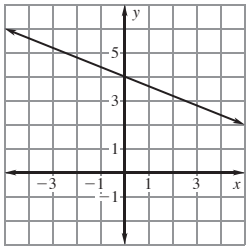
35. $m = -\frac{4}{5}, b = 9$ **36.** $m = \frac{4}{7}, b = -3$

37. yes; 10 **38.** no

39.

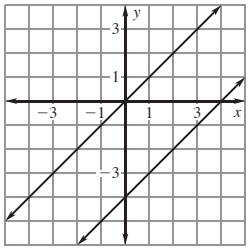


40.



41. $p = 2.4a$; \$72

42.



Because the graph of $h(x)$ and $f(x)$ have the same slope, $m = 1$, the lines are parallel. Also, the y-intercept of the graph of h is 4 less than the y-intercept of the graph of f.

43. $y = 3x + 5$ **44.** $y = -2x + 3$

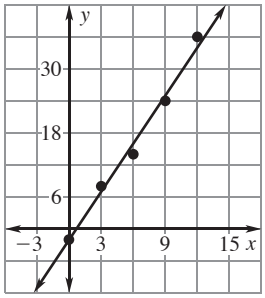
45. $y = \frac{5}{4}x - \frac{7}{4}$ **46.** $y = \frac{1}{3}x + \frac{4}{3}$

47. $y = -\frac{3}{2}x + 1$ **48.** $y = 4x + 10$

49. $y = -x + 2$ **50.** $y = \frac{3}{5}x + \frac{6}{5}$

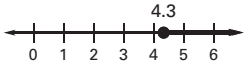
51. $3x - 2y = 5$

52.

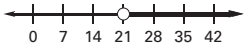


Sample answer: $y = 3x - 2$

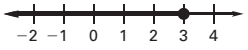
53. $x \geq 4.3$



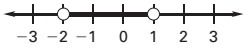
54. $x > 21$



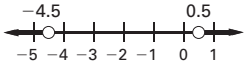
55. $x \leq 3$



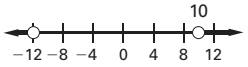
56. $-2 < x < 1$



57. $x < -4.5$ *or* $x > 0.5$

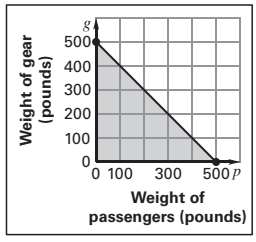


58. $x > 10$ *or* $x < -12$



59. $-3, 7$ **60.** no solution

61. $p + g \leq 500$;



Answers will vary.

62. $(-3, -2)$ **63.** $(2, 3)$ **64.** $(-1, 8)$

65. $(4, 1)$ **66.** no solution **67.** infinitely many solutions

68.