

Chapter 1

_____ 1. Which expression represents the phrase "the difference of twice a number x and 6 is 2"?

- a. $6 - 2x = 2$
- b. $\frac{2}{x} - 6 = 2$
- c. $2x - 6 = 2$
- d. $6 - \frac{2}{x} = 2$

_____ 2. Which set of numbers represents the domain of a function in the table?

Input	-3	-2	-1	0
Output	3	0	-3	-6

- a. 3, 0, -3, -6
- b. -3, -2, -1, 0, 3, 0, -3, -6
- c. -3, -2, -1, 0
- d. -3, -2, -1

_____ 3. Translate the expression $4 < 8k \leq 16$ into a verbal phrase

- a. The product of 8 and a number k is greater than 4 and no more than 16
- b. The product of 8 and a number k is less than 4 and greater than 16
- c. The quotient of 8 and a number k is greater than 4 and no more than 16
- d. The quotient of 8 and a number k is less than 16 and no more than 4

Evaluate the expression.

_____ 4. $2x + 3x^3$, $x = 4$

_____ 5. $\frac{(a + 4b)^2}{-2a}$, $a = 1$, $b = 3$

Simplify using order of operations.

_____ 6. $2 \times 16 \div 4 + 3$

_____ 7. $\left[24 \div (3+1)^2 \right] + 5$

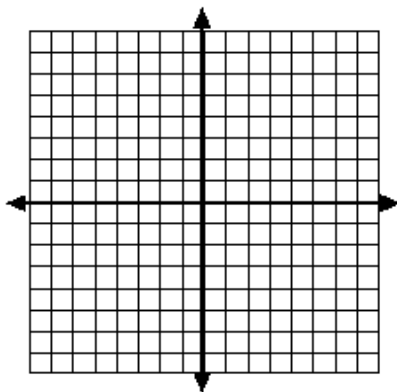
_____ 8. $\frac{1}{2}(4) - \frac{2}{8}$

_____ 9. Is 2 a solution of the inequality $-(x^2 + 3) \leq 33$? Show all your work.

10. Fill in the table, graph the function and identify the range of the following function:

$y = \frac{1}{2}x - 3$ given domain: -4, -2, 0, 2, 4

input					
output					



Range: _____

Chapter 2

_____ 11. Evaluate the expression $7 + x + (-2)$ when $x = -8$.

- a. 13
- b. 17
- c. -3
- d. -13
- e. 3

_____ 12. Evaluate the expression $-|-6| + 3$

- a. 3
- b. 9
- c. 0
- d. -3
- e. -9

_____ 13. Find the difference.

$$\begin{bmatrix} 2 & 3 \\ -1 & 6 \\ 5 & -4 \end{bmatrix} - \begin{bmatrix} 7 & -8 \\ 6 & 3 \\ 2 & -1 \end{bmatrix} =$$

a. $\begin{bmatrix} 9 & -5 \\ 5 & 9 \\ 7 & -5 \end{bmatrix}$

b. $\begin{bmatrix} -5 & 11 \\ -7 & 3 \\ 3 & -3 \end{bmatrix}$

c. $\begin{bmatrix} 5 & 11 \\ 5 & 3 \\ 3 & -3 \end{bmatrix}$

d. $\begin{bmatrix} -5 & -5 \\ -7 & 3 \\ 3 & -5 \end{bmatrix}$

_____ 14. Evaluate the expression $3.1 + (-3.3) - 1.8$

- a. -1.6
- b. -2.0
- c. 1.6
- d. 3.6

_____ 15. Simplify the quotient $\frac{30 - 21x}{3}$

- a. $\frac{30 - 7x}{3}$
- b. $\frac{1 - x}{3}$
- c. $10 - x$
- d. $10 - 7x$

_____ 16. Simplify the expression $-5t(3 - t)$

_____ 17. Evaluate the expression $2 - (-6) + (-14)$.

_____ 18. Write the numbers in increasing order: $\sqrt{3}, -6.8, 2, -\sqrt{49}, 1.58$

_____ 19. Simplify the following: $-3x(2 + x)$

_____ 20. Simplify the following: $8 - 3(2x - 3)$

_____ 21. The area of a square room is 169 feet. Find the length of one side of the room.

_____ 22. In four plays a football team gains 3 yards, loses 7 yards, loses 2 yards and gains 11 yards. How many yards did the team gain after 4 plays?

Chapter 3

_____ 23. What is the solution of the equation $15 = \frac{3}{5}n$?

- a. 5
- b. 9
- c. $15\frac{3}{5}$
- d. 25

_____ 24. What is the solution of the equation $\frac{2}{3}c + 6 = -12$?

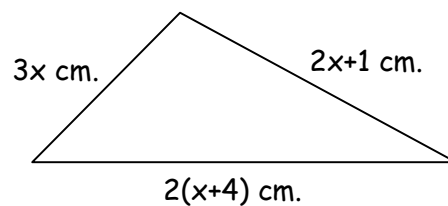
- a. -27
- b. -28
- c. -9
- d. 3

_____ 25. What is the solution of the equation $8x - 4(5 - x) = -44$?

- a. -6
- b. -2
- c. 5
- d. 8

_____ 26. The perimeter of the triangle is 37 cm. What is the value of x ?

- a. $2\frac{1}{4}$
- b. 4
- c. $4\frac{3}{7}$
- d. 25



_____ 27. What is the value of y in the proportion $\frac{6}{y-5} = \frac{18}{y+1}$?

- a. $\frac{1}{2}$
- b. 5
- c. 8
- d. 23

_____ 28. Solve the equation, if possible: $13 - 6x = 3x - 14$

_____ 29. Solve the equation, if possible: $4(3x - 2) = 2(6x + 1)$

_____ 30. Solve the equation, if possible: $4(4x - 5) = 2(8x - 10)$

_____ 31. Write the sentence as a proportion, then solve the proportion:
10 is to 45 as b is to 225.

- _____ 32. What percent of 64 is 16?
- _____ 33. What number is 15% of 80?
- _____ 34. 25.8 is 86% of what number?
- _____ 35. You bought a sweater on sale for \$15. The original price of the sweater was \$40. What percent of the original price was the sale price?
- _____ 36. Solve the literal equation for x : $ax - by = c$
- _____ 37. The Cumberland Caverns in Tennessee is 44.4 kilometers long. This cave is 10.9 kilometers longer than Carlsbad Caverns in New Mexico. How long is Carlsbad Caverns?
- _____ 38. A fitness center offers yoga classes for \$10 per class and sells yoga mats for \$19.95. A person paid a total of \$139.95 to the fitness center for yoga classes and a mat. Find the number of yoga classes the person took.
- _____ 39. Currently, you have \$80 and your sister has \$145. You decide to save \$6 of your allowance each week. How long will it be before you have as much money as your sister?

_____ 40. Your digital camera printed off 5 pictures in 7.5 minutes. At this rate, how long will it take you to print off 18 pictures?

Chapter 4

Multiple Choice: Write the letter of the answer on the blank line next to the problem.

_____ 41. Which ordered pair is a solution of $3x - 4y = -5$?

- a. (1, 2)
- b. (-2, 1)
- c. (2, 1)
- d. (1, -2)

_____ 42. What is the x-intercept of the equation $3x - 2y = -12$?

- a. (0, 6)
- b. (0, -4)
- c. (-4, 0)
- d. (6, 0)

_____ 43. What is the value of x for the line that has a slope of $-\frac{3}{5}$ and passes through the points (6, 2) and $(x, 8)$?

- a. $x = 4$
- b. $x = -\frac{12}{5}$
- c. $x = -4$
- d. $x = \frac{12}{5}$

_____ 44. What is the slope of the line $-x - 3y = -3$?

- a. -3
- b. $-\frac{1}{3}$
- c. $\frac{1}{3}$
- d. 3

_____45. Which direct variation equation has a constant of $\frac{4}{5}$.

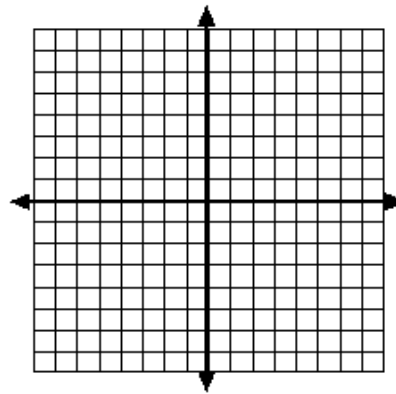
- a. $-5x = 4y$
- b. $4x = 5y$
- c. $5x = 4y$
- d. $-4x + 5y + 3 = 0$

Graph the function with the given domain -2, -1, 0, 1, 2 and state the range:

46. $f(x) = -2x - 1$

x	y	Ordered Pair

Range: _____

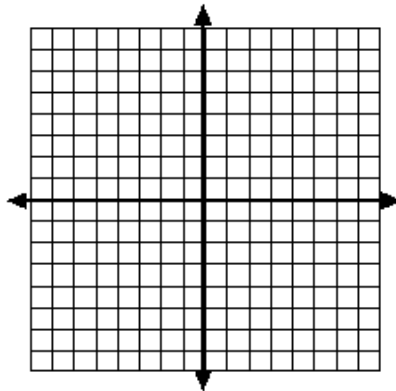


Graph the line, identify the slope and y-intercept

47. $-2x - y = 5$

Slope: _____

y-intercept: _____



Find the x-intercept and y-intercept for each equation:

48. $2x - 5y = 20$

x-intercept _____ y-intercept _____

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

_____ 49. $(-3, 2)$ and $(3, -8)$

_____ 50. $(0, 1)$ and $(0, -2)$

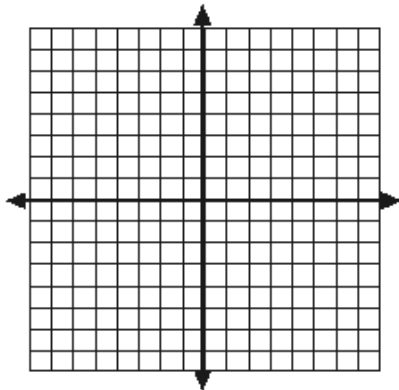
_____ 51. $(1, 5)$ and $(3, 5)$

- a) *Write the equation in slope-intercept form*
- b) *Identify the slope and y-intercept*
- c) *Graph the line*

_____ 52. $3x - 2y = 8$

slope: _____

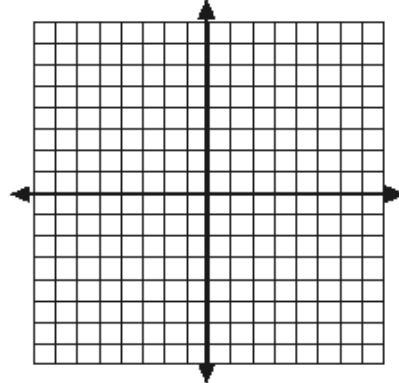
y-int: _____



_____ 53. $2x + 3y = 9$

slope: _____

y-int: _____



Given that y varies directly with x, use the specified values to write a direct variation EQUATION that relates x and y.

_____ 54. $x = -5, y = 10$

Evaluate the function for the given value of x:

_____ 55. $f(x) = 3x + 12$, when $x = -5$

Chapter 5

56-58 For the equations on the left , write the letter from the choices on the right that correctly identifies the slope of the line, the y-intercept and one other point on the line . If a correct answer can't isn't listed, write "x" in the blank.

56. $y = \frac{2}{3}x - 5$ slope _____ y-int. _____ point _____ a. (0, -38)

b. (0, -4)

c. (7, -3)

d. $\frac{2}{3}$

57. $-4x - 3y = 12$ slope _____ y-int. _____ point _____

e. (0, -5)

f. (-3, 0)

g. (3, -3)

h. 5

58. $y + 3 = 5(x - 7)$ slope _____ y-int. _____ point _____

i. $-\frac{4}{3}$

_____ 59. Which of the following is true for the lines indicated by the solutions to the equations in a, b, and c?

Line a: $-2x + y = 4$

Line b: $2x + 5y = 2$

Line c: $x + 2y = 4$

- a. Lines a & b are parallel
- b. Lines a & b are perpendicular
- c. Lines a & c are parallel
- d. Lines a & c are perpendicular

60-63. Write the equation of the line, (you may choose the form if not indicated)

_____ 60. If the line runs through the points (-2, 5) and (4, 9) ... in slope intercept form

a. $y = 2x + 6\frac{2}{3}$

b. $y = \frac{3}{2}x + 6\frac{1}{3}$

c. $y = \frac{2}{3}x + 11\frac{2}{3}$

d. $y = \frac{2}{3}x + 6\frac{1}{3}$

_____ 61. If the line is vertical and runs through the point (6, -8).

_____ 62. If the line runs through the point (-5, 1) and has a slope of $\frac{2}{3}$.

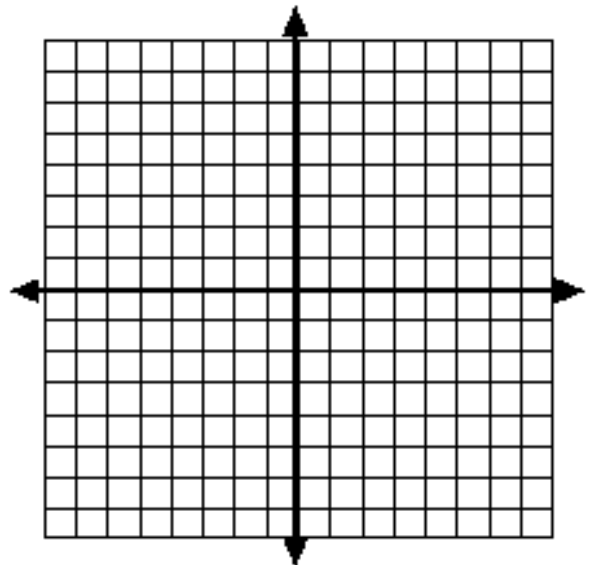
_____ 63. Is the point $\left(3\frac{3}{8}, -2\frac{3}{4}\right)$ on the line whose equation is $y = -2x + 4$?
Show work to justify.

64. *Graph the following.*

a. the points that would be solutions
to $y = -\frac{1}{3}x - 4$...label it "a"

b. the points that would be solutions to
 $2x - 5y = 10$... label it "b"

c. the points that would be solutions to
 $y - 1 = -2(x + 3)$...label it "c"



65. From 1990 to 2001, the number of airports in the U.S. increased at a relatively constant rate of 140 airports per year. If there were 18,600 airports in 2001,

a. Find the number of airports in 1990. _____

b. Write an equation that gives the number of airports as a function of the number of years since 1990. _____

Chapter 6

_____66. Which inequality is equivalent to $x - 5 \leq 2x - 6$?

- a. $x \leq 1$
- b. $x \geq -1$
- c. $x \geq 1$
- d. $x \geq 11$
- e. $x \leq 11$

_____67. Choose the solution of the inequality $6 < 2x - 3 \leq 11$

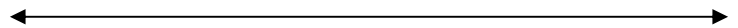
- a. $\frac{3}{2} > x \geq 7$
- b. $\frac{9}{2} < x \leq 7$
- c. $\frac{9}{2} > x \geq 7$
- d. $\frac{3}{2} < x \leq \frac{9}{2}$
- e. $\frac{3}{2} < x \leq 7$

_____68. Which numbers are solutions of the absolute value equation $|x - 1| - 2 = 6$?

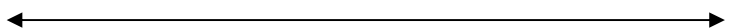
- a. 9 and -7
- b. -9 and 7
- c. 5 and -3
- d. 7 and 8
- e. -5 and -3

Solve and graph the following, if possible:

_____69. $3x - 9 \geq -27$



_____70. $-\frac{x}{4} + 2 \leq -22$



_____ 71. $-2|x+5|=20$

_____ 72. $\frac{1}{3}|2x-6|=8$

_____ 73. $-\frac{1}{4}|2x+4|+2=-6$

_____ 74. $3|2x-6|+2 \leq 11$



_____ 75. $y \leq 2x - 5$

_____ 76. $3y - x \geq 2x + 9$

