Alg1 - Sem1 - PRACTICE FINAL

Name: _____ Period: _____

- Solving Linear Equations
- Solving Linear Inequalities
- Graphing Linear Functions
- Writing Linear Functions
- Solving Systems of Linear Equations
- Correlation

Show all work for full credit.

Simplify

1. $-(w - 5) =$

   a. $w - 5$
   b. $w + 5$
   c. $-w - 5$
   d. $-w + 5$

2. $8(4x + 3) =$

   a. $32x + 3$
   b. $32x + 24$
   c. $12x + 11$
   d. $84x + 3$

3. $5(3x - 4) - 2x =$

   a. $13x - 4$
   b. $-7x$
   c. $13x - 20$
   d. $15x - 22$

Calculate

4. $60 \div 5 \bullet 3 =$

   a. 4
   b. 36
   c. 165
   d. 45

5. $7 - 5^2 =$

   a. -18
   c. 4
   b. -3
   d. 18

Evaluate

6. if $x = 4$
   $5x^3 =$

   a. 8000
   b. 320
   c. 60
   d. 400

7. if $u = 16$, $x = 12$, and $y = 9$
   $u + xy =$

   a. 145
   b. 37
   c. 124
   d. 28

Collect like terms.

8. $2m + 5 + 4m - 6$

   a. $7m - 2$
   b. $6m - 1$
   c. $7m - 11$
   d. $6m - 11$

Translate each into an algebraic expression.

9. Seven less than one-third of a number

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

10. Two times the sum of a number and five

    a. $2n + 5$
    b. $2(n + 5)$
    c. $2n + 5n$
    d. $2n + n + 5$

11. Rebecca is half as old as Susan. If Susan is n years old, write an expression for Rebecca's age.

a. $\frac{n}{2}$

b. $2n$

c. $n - 2$

d. $\frac{1}{2}$

12. Determine the common difference of the arithmetic sequence: **0.12, 0.34, 0.56, 0.78**?

a. 21

b. -22

c. 22

d. 0.22

13. Determine the common difference of the arithmetic sequence: **-1, -3, -5, -7, -11**?

a. -2

b. 2

c. No common difference

d. 4

Solve for the given variable.

14. $y + 9 = 15$

a. $\frac{5}{3}$ b. 24

c. 135 d. 6

15. $-6w = 42$

a. –7 b. 7

c. 48 d. 36

Solve for the given variable.

16. $\frac{t}{13} = -2$

a. 26 b. $\frac{2}{13}$

c. –26 d. $-\frac{2}{13}$

17. $a + 0.8 = 0.6$

a. –0.2 b. 0.2

c. 0.14 d. 1.4

18. $-4x + 3 = 12$

a. $\frac{9}{4}$ b. $-\frac{9}{4}$

c. –6 d. 0

19. $\frac{2}{3}w - 5 = 7$

a. 3 b. 8

c. 18 d. $1\frac{1}{3}$

20. $7 - y = 16$

a. 9 b. –9

c. 23 d. –23

21. $-8 = \frac{z}{5} + 2$

a. 30 b. –30

c. 50 d. –50

Solve for the given variable.

22. $\frac{1}{4}x + 1 = \frac{1}{2}$

a. 2 b. 0

c. –2 d. $\frac{1}{2}$

23. $3(4x - 7) = 15$

a. 3 b. 13

c. 12 d. 2

24. $3v + 4v = 14$

a. 7 b. 2

c. 98 d. 14

25. $5x = 8 + x$

a. –3 b. 13

c. 2 d. $\frac{5}{8}$

26. $7x + 2(5x + 1) = 14x$

a. $-\frac{2}{3}$ b. $\frac{2}{3}$

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

27. $|x - 2| = 20$

a. $x = -22,\ x = 22$
b. $x = 22$
c. x = -18, x = 22
d. no solution

28. $\frac{3}{5} = \frac{12}{y}$

a. 0.05 b. 20

c. 60 d. 12.6

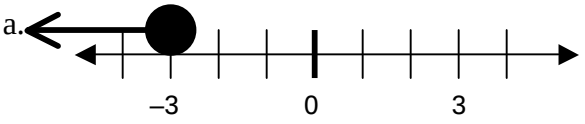
29. On a map, if 0.5 cm represents 25 km, how many km does 5 cm represent?

a. 25 km b. 2.5 km

c. 0.25 cm d. 250 km

30. Which graph represents $x \geq -3$?

a.



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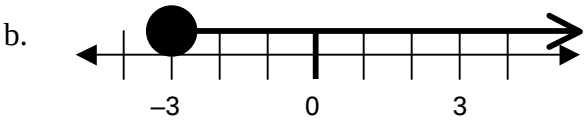

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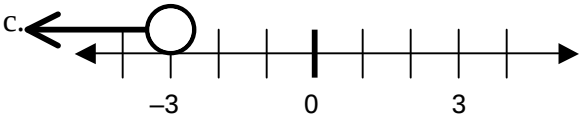

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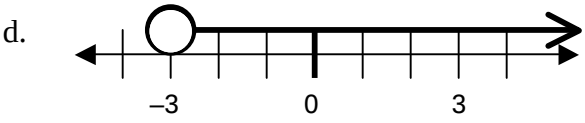


31. $-2 < x$

a. $x < 2$ b. $x < -2$

c. $x > 2$ d. $x > -2$

For each inequality below, solve for the given variable.

32. $x - 5 \leq 8$

a. $x \geq 13$ b. $x \leq 13$

c. $x \geq 3$ d. $x \leq 3$

33. $-2y < 18$

a. $y < -9$ b. $y < 9$
c. $y > -9$ d. $y > 9$

34. $7 - 4x < -1$

a. $x > 2$ b. $x < 2$

c. $x < \frac{3}{2}$ d. $x > \frac{3}{2}$

35. $5w + 3 \geq 3w + 13$

a. $w \geq 5$ b. $w \leq 5$
c. $w \geq 8$ d. $w \leq 8$

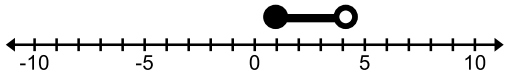
36. $5 \leq x - 4 \leq 10$

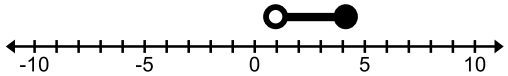
a. $9 \leq x \leq 14$
b. $1 \leq x \leq 6$
c. $9 \leq x \geq 14$
d. $1 \leq x \geq 6$

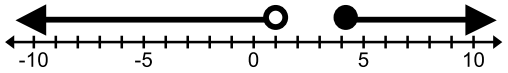
37. $x + 3 \leq 2$ or $2x \geq 6$

a. $-1 \leq x \leq 3$
b. $-1 \leq x \geq 3$
c. $x \leq -1$ or $x \geq 3$
d. $x \geq -1$ or $x \leq 3$

38. $x \leq 1$ or $x > 4$

a.


b.


c.


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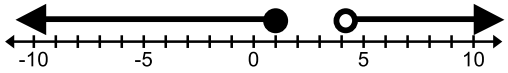
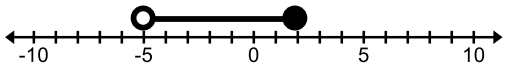


39. $-5 \leq x < 2$

a.


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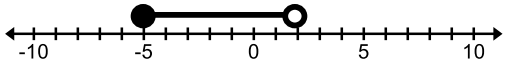

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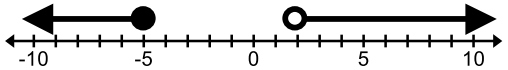

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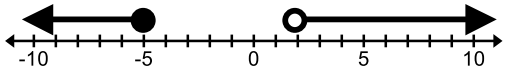
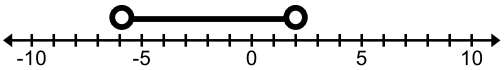


40. $|2x + 4| > 8$

a.


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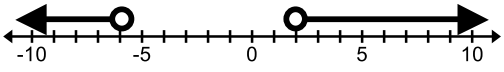

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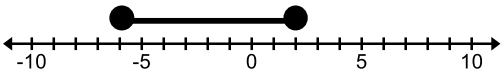

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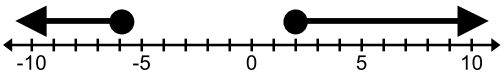
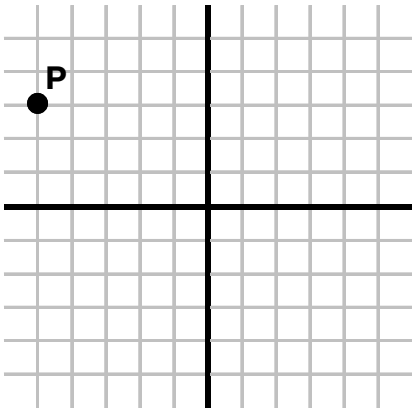


41. What are the coordinates of point P?

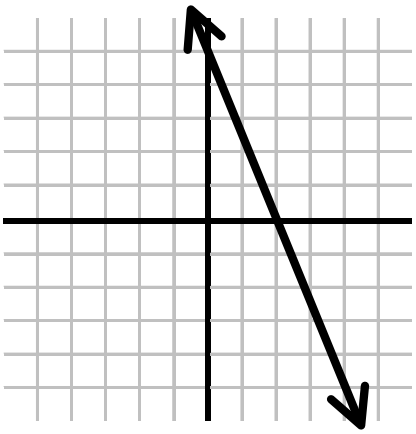


a. (3, – 5)
b. (– 3, 5)
c. (5, – 3)
d. (– 5, 3)

42. In which Quadrant is (– 2, 6) located?

a. Quadrant I
b. Quadrant III
c. Quadrant II
d. Quadrant IV

43. What are the coordinates of the y-intercept?



a. (0, 2)
b. (2, 0)
c. (0, 5)
d. (5, 0)

44. What are the x- and y-intercepts of the line with equation $3x - 4y = 24$?

a. x- intercept = 8, y- intercept = − 6
b. x- intercept = 3, y- intercept = − 4
c. x- intercept = 8, y- intercept = 6
d. x- intercept = 3, y- intercept = 4

45. What is the y-intercept of the line $y = \frac{2}{5}x - \frac{1}{5}$?

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

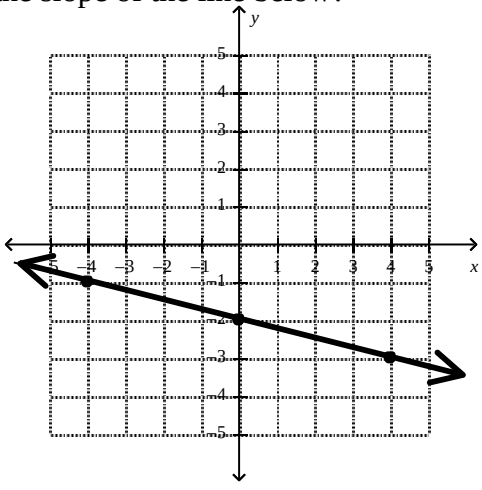
46. What is the slope of the line $y = -\frac{3}{4}x - 2$?

a. −2
b. $\frac{3}{4}$
c. 2
d. $-\frac{3}{4}$

47. A line passes through the points (0, − 8) and (− 2, 5). What is the slope of the line?

a. $-\frac{13}{2}$
b. $-\frac{3}{2}$
c. $\frac{13}{2}$
d. $\frac{3}{2}$

48. What is the slope of the line below?



a. $\frac{1}{4}$
b. $-\frac{1}{4}$
c. 4
d. −4

49. The lines represented by $y = \frac{2}{3}x + 4$ and $y = \mathbf{m}x - 6$ are parallel. Which could be the value of **m**?

a. $\frac{3}{2}$ b. $\frac{2}{3}$

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

50. How are the lines $y = \frac{2}{3}x + 4$ and $y = -\frac{3}{2}x - 6$ related?

a. The lines are parallel.

b. The lines are perpendicular.

c. The lines intersect, but are not perpendicular.

d. The lines are the same.

51. How are the lines $y = \frac{2}{3}x + 4$ and $-3x + 2y = 6$ related?

a. The lines are parallel.

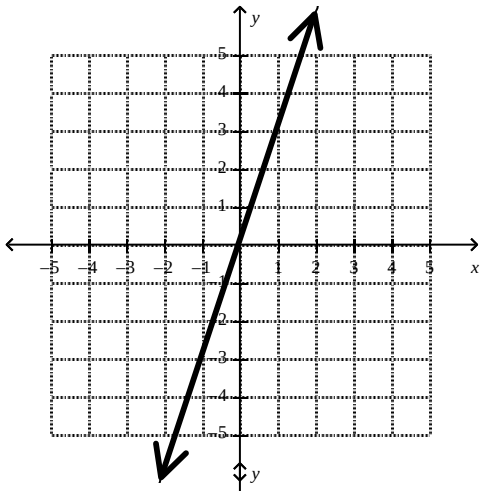
b. The lines are perpendicular.

c. The lines intersect, but are not perpendicular.

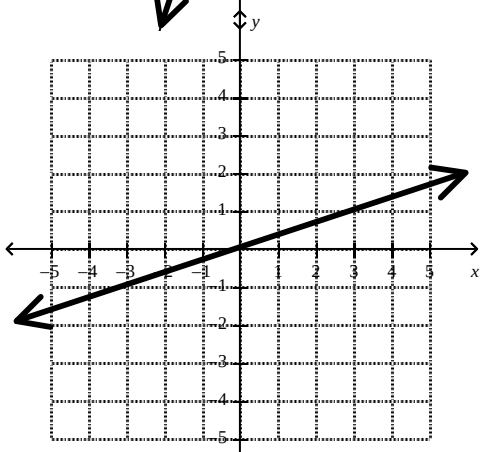
d. The lines are the same.

52. Which graph represents $y = \frac{1}{3}x$?

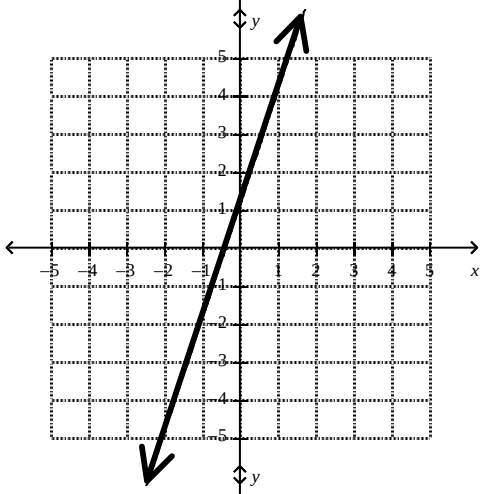
a.



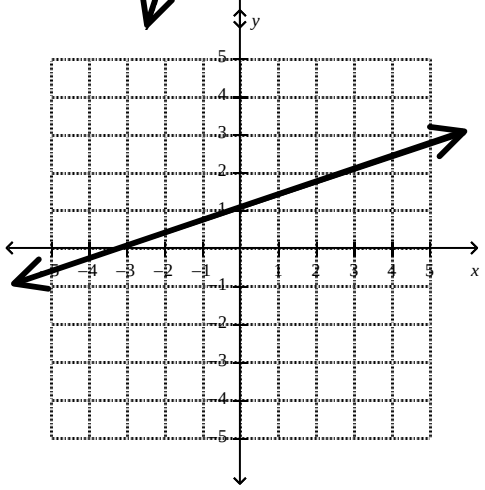
b.



c.

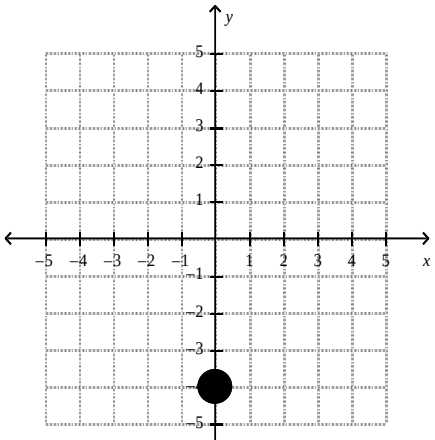


d.

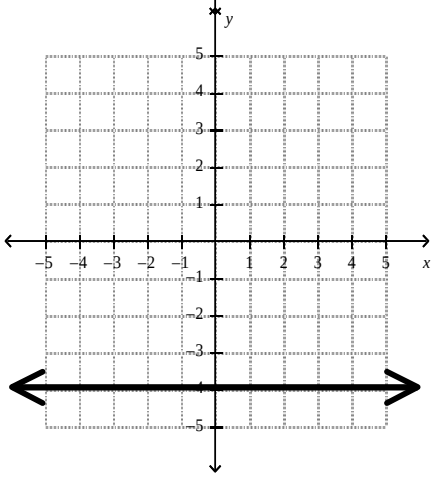


53. Which graph represents y = −4?

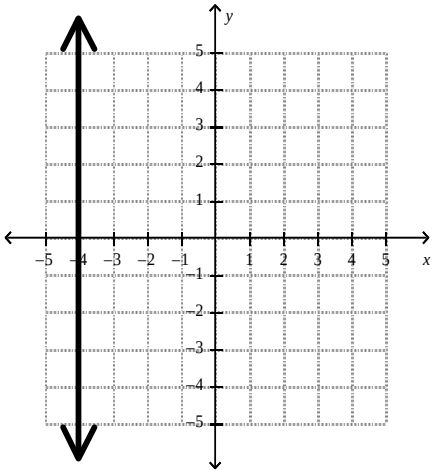
a.



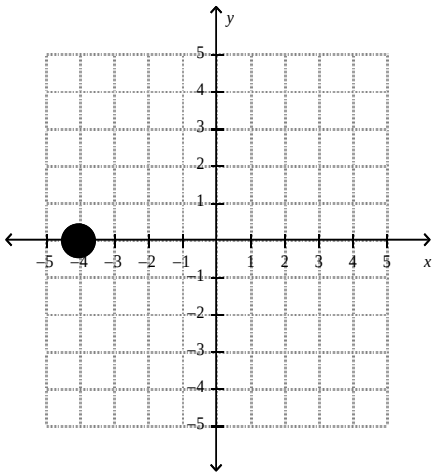
b.



c.

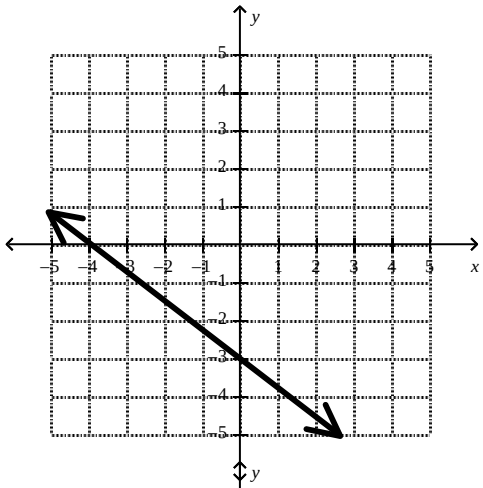


d.

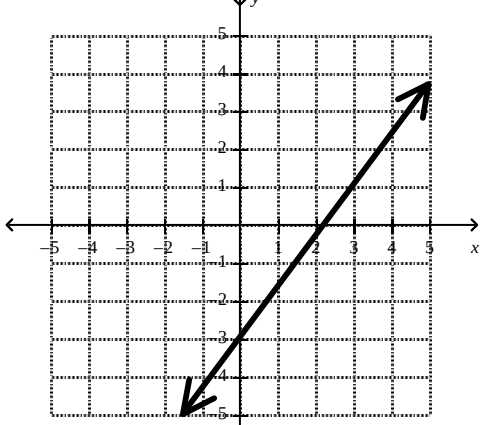


54. Which graph represents y = $\frac{3}{4}$ x – 3?

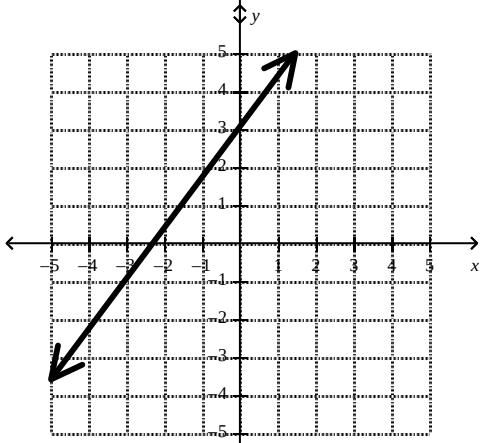
a.



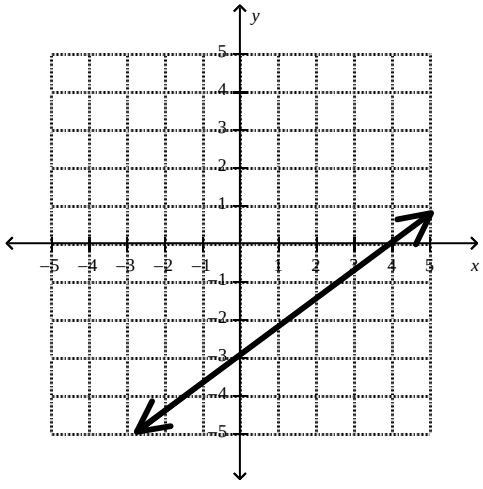
b.



c.



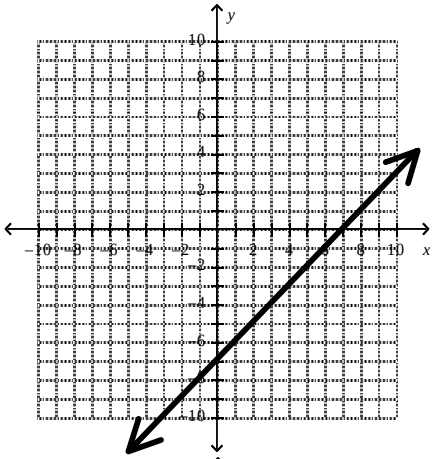
d.



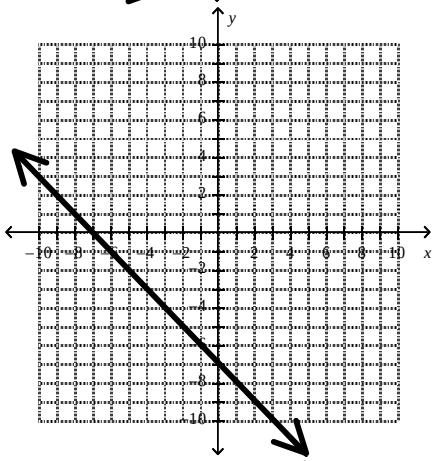
55. Which graph represents

$-7x + 7y = -49$?

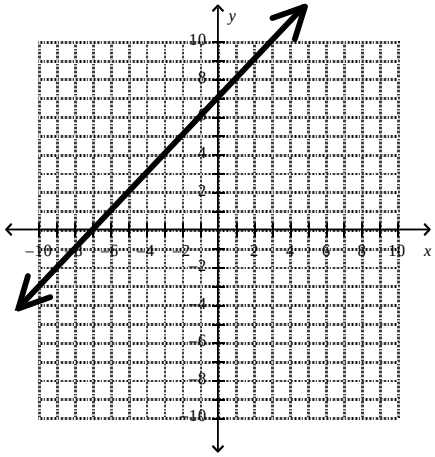
a.



b.



c.



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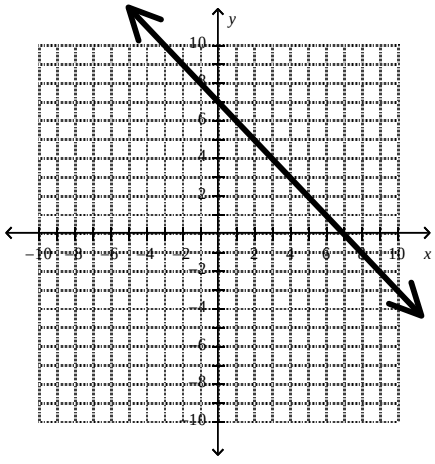
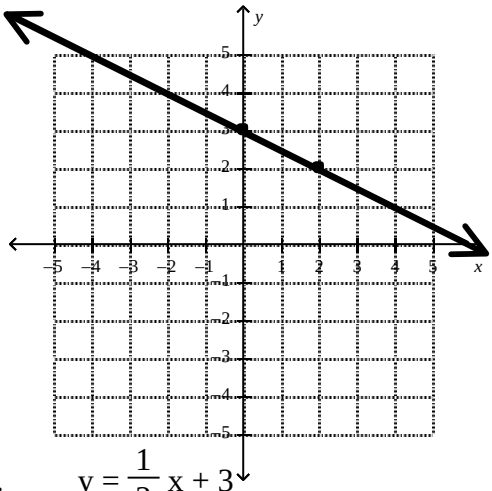


56. Which equation represents the graph shown?



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

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

c. $y = 2x + 3$

d. $y = -2x + 3$

57. A line has a slope of 5 and a y-intercept of (0, 8). What is the equation of this line?

a. $y = -8x - 5$
b. $y = 8x + 5$
c. $y = -5x - 8$
d. $y = 5x + 8$

58. A line has a slope of – 3 and passes through the point (1, 4). What is the equation of this line?

a. $y = -3x + 13$
b. $y = -3x - 13$
c. $y = -3x + 7$
d. $y = -3x - 7$

59. A line passes through the points (1, –5) and (–3, 7). What is the equation of this line?

a. $y = 3x + 8$

b. $y = \frac{1}{3}x + \frac{8}{3}$

c. $y = \frac{1}{3}x + \frac{16}{3}$

d. $y = -3x - 2$

60. A line passes through the points (-3, -2) and (2, -1). What is the equation of this line?

a. $y = \frac{1}{5}x - \frac{7}{5}$
b. $y = -\frac{7}{5}x + \frac{1}{5}$
c. $y = \frac{3}{5}x - \frac{7}{5}$
d. $y = -\frac{3}{5}x - \frac{7}{5}$

61. A line passes through the point (-5, 3) and is parallel to the line $y = -\frac{2}{5}x + 3$. What is the equation of this line?

a. $y = -\frac{2}{5}x + 1$
b. $y = -x - \frac{2}{5}$
c. $y = \frac{2}{5}x + 1$
d. $y = x - \frac{2}{5}$

62. A line passes through (-3, -3) and is perpendicular to the line $y = -\frac{1}{2}x + 1$. What is the equation of this line?

a. $y = 2x + 3$
b. $y = 3x - 2$
c. $y = 5x - 2$
d. $y = -2x + 3$

63. What is the domain, D, and the range, R, of the relation defined by:
{(8, 1), (8, 4), (8, 2), (8, 3)}

a. D = {1, 2, 3, 4}
R = {8}

b. D = {8}
R = {1, 2, 3, 4}

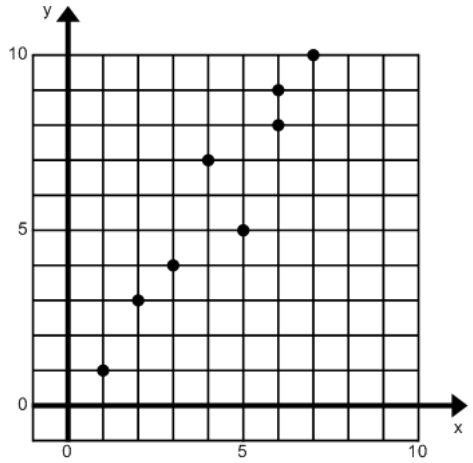
c. D = {1, 2, 3, 4, 8}
R = all real numbers

d. D = all real numbers
R = {1, 2, 3, 4, 8}

64. Which of the following does **not** represent a function?

a. {(0, 4)}
b. {(1, 3), (2, 4), (5, 7), (6, 8)}
c. {(1, 4), (0, 2), (–5, 4)}
d. {(2, 5), (3, –2), (2, 0)}

Use the scatter plot below to answer #65 - #67.



65. Which of the following equations "best fits" the data from the graph?

a. $y = \frac{3}{2}x - 1$
b. $y = -\frac{3}{2}x - 1$
c. $y = -\frac{1}{3}x - 1$
d. $y = \frac{1}{3}x - 1$

66. Describe the correlation of the data:

a. positve & weak
b. negative & weak
c. positive & strong
d. negative & strong

67. Estimate the correlation coefficient (r-value) of the data:

a. r = –0.1
b. r = 0.9
c. r = –0.9
d. r = 0.1

Solve each system of equations.

68. $\begin{cases} -6x - y = -20 \\ -3y - 6x = 0 \end{cases}$

a. (-5, -6)
b. (5, -10)
c. (3, -5)
d. (-10, 5)

69. $\begin{cases} -5x - y = 23 \\ 5x + 4y = -2 \end{cases}$

a. $(-6, 7)$
b. $(-6, 4)$
c. $(-10, 4)$
d. $(4, -10)$

70. $\begin{cases} 6x + 24y = -17 \\ -8y = 2x + 8 \end{cases}$

a. (-1, 1)
b. *No Solution*
c. *Infinite Solutions*
d. (1, -1)

71. $\begin{cases} 2x - 4y = -14 \\ y = 3 \end{cases}$

a. (-5, 3)
b. (-2, 3)
c. (-1, 3)
d. (-1, -3)

72. $\begin{cases} 2x - y = 1 \\ y = -7x + 17 \end{cases}$

a. (-3, 2)
b. (-3, 1)
c. (3, 2)
d. (2, 3)

73. $\begin{cases} x - 2y = 15 \\ 8x + 6y = -12 \end{cases}$

a. (-3, 6)
b. (3, -6)
c. (3, 6)
d. (-3, -6)

Answer Key

1. D	2. B	3. C	4. B
5. A	6. B	7. C	8. B
9. D	10. B	11. A	12. D
13. C	14. D	15. A	16. C
17. A	18. B	19. C	20. B
21. D	22. C	23. A	24. B
25. C	26. A	27. C	28. B
29. D	30. B	31. D	32. B
33. C	34. A	35. A	36. A
37. C	38. D	39. B	40. B
41. D	42. C	43. C	44. A
45. C	46. D	47. A	48. B
49. B	50. B	51. C	52. B
53. B	54. D	55. A	56. B
57. D	58. C	59. D	60. A
61. A	62. A	63. B	64. D
65. A	66. C	67. B	68. B
69. A	70. B	71. C	72. D
73. B			