

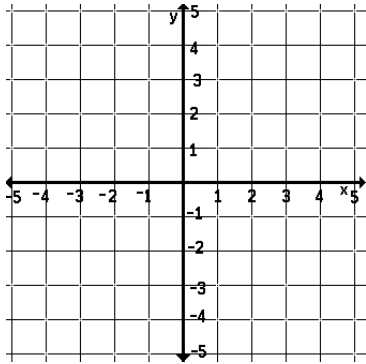
Algebra I Summer Review 2019

1. Solve for y : $2x + 3y = 18$
2. Kim is 5 years younger than Amy. If A represents Amy's age, write an expression to represent Kim's age.
3. Simplify: $3 + 4(x - 5)$
4. Simplify: $\frac{16x^3 + 4x}{-4x}$
5. Simplify: $(3x + 5)(x - 8)$
6. Simplify: $3x^4 - 2x^5$
7. Simplify: $\frac{24w^{15}}{6w^5}$
8. Factor: $x^2 + 7x + 12$
9. Solve for x : $(x + 5)(x - 2) = 0$
10. If $f(x) = -3x^3 - 6x$, then find $f(-2)$
11. Solve the system: $\begin{cases} 3x + y = 11 \\ 6x - 2y = 14 \end{cases}$
12. Solve using the quadratic formula:
 $4x^2 - 6x - 1 = 0$
13. Connor has \$134 in his bank account. He starts saving \$45 a month. After some time, he has \$450.00 saved. Write an equation to the model the situation. *Do not solve.*

14. Find the x - and y -intercepts for $0.5x + 1.5y = 10.5$

15. Write an equation for the line in slope-intercept form that passes through the points $(5, -3)$ and $(5, 4)$.

16. Graph: $-3x + 2y > 6$

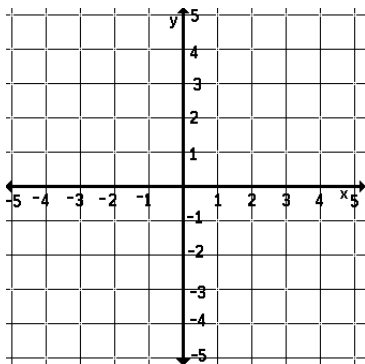


17. Write a system of equations to represent the situation. *Do not solve.* Bob has 21 coins in dimes and quarters in his pocket. If the total value of these coins is \$3.30, how many dimes and how many quarters does Bob have in his pocket?

18. The line joining the points $C(5,7)$ and $D(1, k)$ has a slope of $\frac{1}{4}$. Find the value of k .

19. Simplify: $\frac{4y^3}{(4y^5)^2}$

20. Graph: $y = x^2 - 4x - 12$ (label at least 5 points)



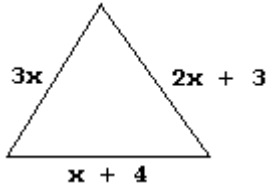
21. Write an expression for the perimeter of a rectangle with a width of x inches and a length that is three inches less than four times the width.

22. The population, P, is represented by the function:

$$P(t) = 4105 - 15t^2$$

where t is the number of years since 2008. According to this model, how many years will it take for the population to go to zero?

22. The triangle below has a perimeter of 25, solve for x .

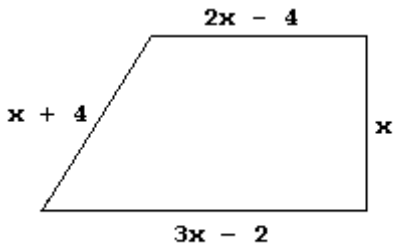


23. Joseph runs a lawn care service. He charges an initial estimation fee of \$15 plus an hourly rate of \$5.75 an hour for lawn care. Write an equation that describes the total cost for a person receiving his services for the first time.

24. Solve the equation: $2x + 14 - 5x = 9 - 2(3x - 2)$.

25. Simplify the expression $\frac{-24x - 8}{-4}$.

26. The trapezoid below has a perimeter of 40; find the length of each side.



27. Solve the equation for y . Round your result to two decimal places.

$$27.4y - 11.2 = 7.3y - 12.6$$

28. Solve for x : $-\frac{2x}{3} = 6$

28. If $f(x) = 2x - 3x^2 + (x + 5)$, what is $f(-2)$?

29. Solve for p : $3p + 2 = p + 3$

30. Simplify: $8 - 3(2x - 1) + 5x$.

31. Solve for m : $4m - 3(m + 2) = 5(4 - m)$.

32. Solve for x : $-3(2 - x) + x = \frac{6 + 3x}{-3} - 9$

33. Simplify the expression $[(5 \cdot 3a) \div a] + 2a$, if $a = 3$.

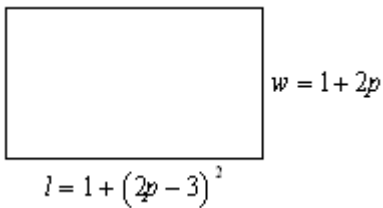
34. Solve for d : $4d + 3 = 27$.

35. Which of the following sets of ordered pairs is a function?

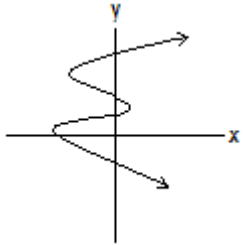
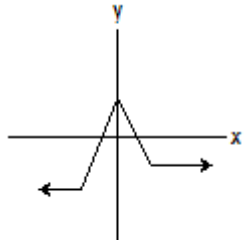
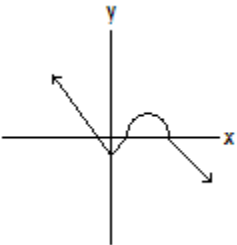
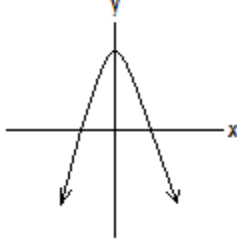
- a. $\{(-3, -2), (-3, 2), (-4, -2), (-4, 2)\}$
- b. $\{(-3, -3), (2, 2), (-2, -2), (3, 3)\}$
- c. $\{(-3, 1), (3, -1), (-5, 2), (-5, -2)\}$
- d. $\{(2, 4), (2, 3), (2, 1), (2, 0)\}$

36. Simplify $(6 - 2)^2 - 4[(2 + 1)^2 - 4] \div 2$

37. Given that the area of a rectangle is $A = lw$, where l represents the length and w represents the width. Find the area of the figure below given that $l = 3$.



38. Which graph below **does not** represent a function?

- a. 
- b. 
- c. 
- d. 

39. Write an algebraic expression that represents the statement: “60 less than three times Abe’s salary”

40. Which property is described by the expression? $(ax + by) + cz = ax + (by + cz)$

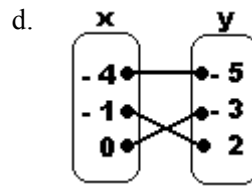
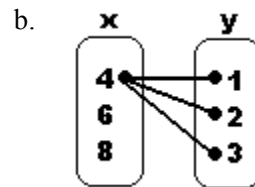
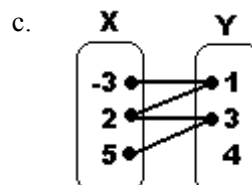
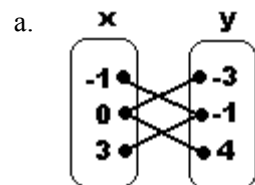
41. Simplify: $(-8 + 4)(-3)^2 - (+5) + (2)(-3 + 5)$.

42. Given the function $f(x) = 3(4 - 2x) - x^2$ and its domain is $\{-8, -6, -3\}$. Find the range for this function.

43. Simplify: $2 + \frac{-8x - 12}{-4} + 3x$?

44. Evaluate $y + 2 \left[-3(y + x)^2 - 5 \right] \div (1 - x)$ when $x = 3$ and $y = -4$.

45. Which of the following diagrams represent a function?



46. Simplify $\sqrt{48}$

47. Simplify $\sqrt{300}$

48. If $g(x) = -4 - 3x + 3x^2$, what is $g(-2)$?

49. Simplify $(6 - 2)^2 - 4 \left[(2 + 1)^2 - 4 \right] \div 2$

50. Simplify the expression: $-3x + 9 - 2(x - 7)$.

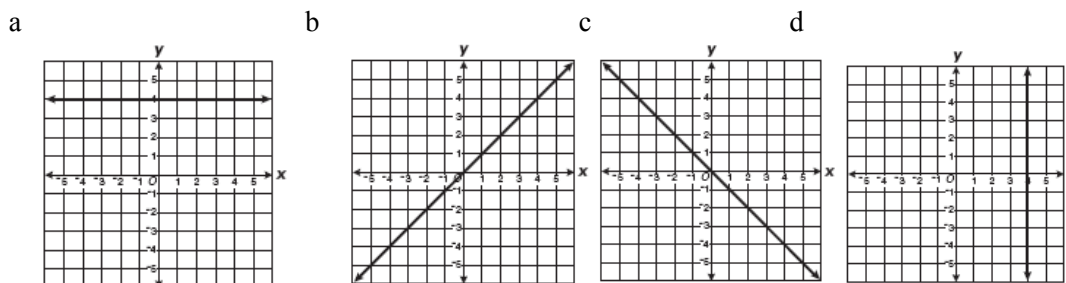
51. Write an equation that describes the verbal phrase: “Eight less than twice the sum of a number and three is equal to four increased by the quotient of the number and two”

52. What is the value of $\frac{4x - 5y}{2y}$ if $x = -6$ and $y = 2$?

53. What is the slope of line containing the points $(3, 2)$ and $(-1, -4)$?

54. What is the value of $3x + 4y$ if $x = \frac{1}{3}$ and $y = \frac{1}{2}$?

55. Which graph best represents a line with undefined slope?



56. What is the slope of the line that passes through the points $(3, 2)$ and $(6, 2)$?

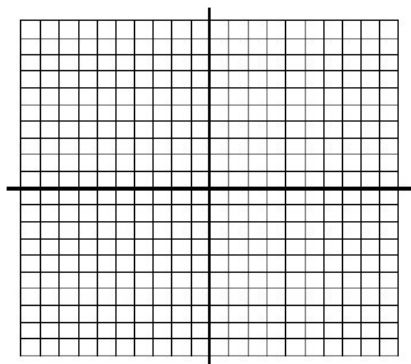
57. **What is the slope of the line $3y = 4x + 5$?**

58. Solve for x : $\frac{1}{4}x + 1 > \frac{15}{2}$

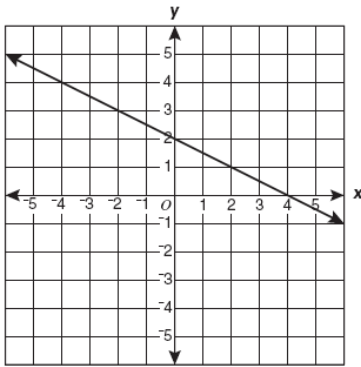
59. What are the x - and y -intercepts of the line with equation $4x + 5y = 40$?

60. What is the equation for the line with slope $= \frac{1}{2}$ and y -intercept of 3?

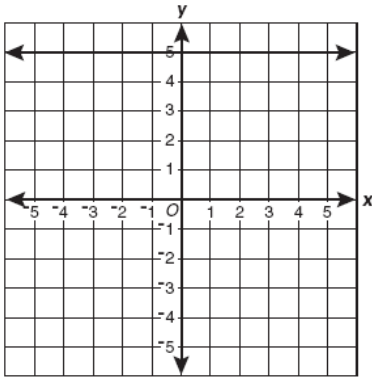
61. Graph the line with an x -intercept of 2 and a y -intercept of -3 ?



62. What is the equation of the line graphed below?



63. Write the equation of the line graphed below:



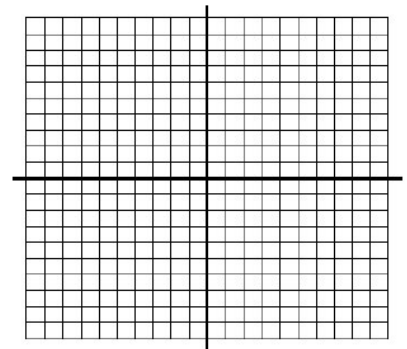
64. The elements of a function of x are $(-4, 1)$, $(-2, 0)$, and $(8, -1)$. What is the range of the function?

65. What is the solution to the following equation: $4x - 1 = 2x + 5$?

66. What is the solution to the following equation? $5(x + 2) = 7(4 - x)$

67. If $f(x) = 5x - 2$, what is $f(3)$?

68. Graph $y = 4x + 2$



69. What is the solution to $4(2x - 3) = 2(3x + 1)$?

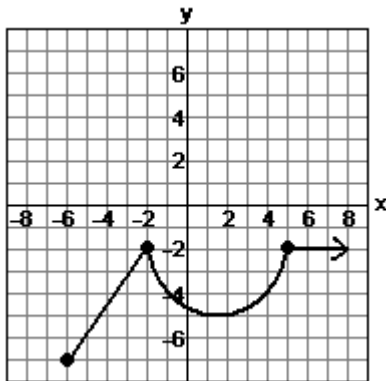
70. The ordered pairs in the sets shown below are of the form (x, y) . In which set of ordered pairs is y not a function of x ?

- a $\{(11, 2), (12, 14), (13, 6)\}$ c $\{(-6, 37), (-6, 10), (-5, 26)\}$
 b $\{(1, 4), (2, 4), (3, 4), (4, 4)\}$ d $\{(2, 0), (4, 1), (6, 2), (8, 3)\}$

71. Which property justifies rewriting $3x - 5x$ as $(3 - 5)x$?

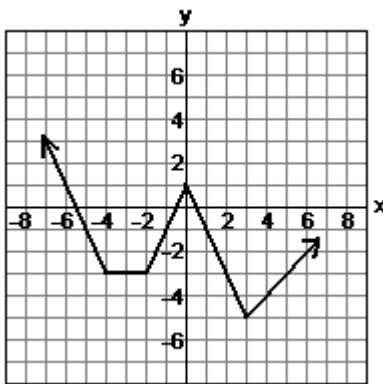
72. If $\frac{1}{3}t - 6 = 15$, what is the value of t ?

73. What is the range of the given graph below?



74. What is the range of the function $f(x) = x^2 - 3$ when the domain is $\{1, 3, 5\}$?

75. What is the domain of the given graph?



76. The perimeter of a rectangular playing field is 244 feet. If its length is 2 feet longer than twice its width, what are the dimensions of the field?

77. What is the value of $\frac{mn}{r^2}$ if $m = 7, n = 18, r = 6$?

78. Solve and graph your solution: $-3(x + 1) \leq 15$

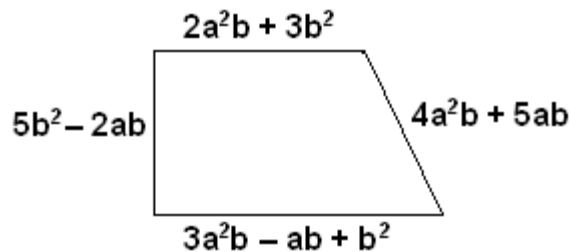
79. Solve the proportion: $\frac{5}{3z-4} = \frac{-3}{1-2z}$

80. What is the slope and y-intercept of $2x + 5y = 10$?

81. Simplify completely.

$$(2p + 5)(2p - 5) - 3(3p - 4)^2$$

82. Write the expression that gives the perimeter of the trapezoid below:



83. Simplify

$$\frac{(3m^2p^{-3})^2}{4m^{-1}p^2} \cdot \frac{2m^{-2}p^4}{6m^3p^6}$$

84. Simplify $(2x^2y^3)^3 \cdot (3xy^2)^2$

85. Write an equation for the line that contains the points $(-3, 5)$ and $(1, -3)$.

86. Factor: $x^2 - 2x - 15$.

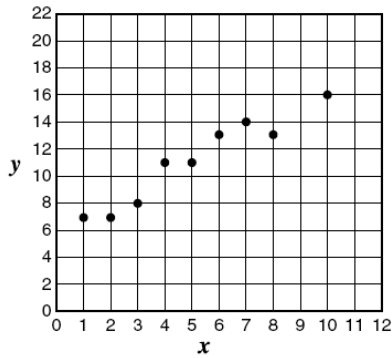
87. Solve: $3x - y = 2$

$$x + 2y = 10$$

88. If $f(x) = 5x^2 - 7$, what is $f(-3)$?

89. The continent of North America has an area of approximately 9.4×10^6 square miles. The area of Asia is approximately 1.74×10^7 square miles. How many square miles larger is Asia than North America?

90.



Using the data plotted on the scatterplot, which equation most closely describes a line of best fit for the data?

- a. $y = x + 6$
- b. $y = 2x - 4$
- c. $y = 2x + 5$
- d. $y = 3x - 4$

91. A delivery service company maintains several vehicles. The table summarizes the cost for auto insurance related to the number of vehicles insured.

Number of Vehicles	Cost (\$)
1	1,700
2	2,200
3	2,700
4	3,200
5	3,700
6	4,200

Using an equation of a line of best fit for the data, estimate the total cost of insuring eight vehicles.

92. What is the solution to the system of equation below?

$$x + 2y = -8$$

$$3x - 4y = -4$$

93. Factor: $2x^2 + 5x + 3$

94. Find the x -intercept and y -intercept of the graph of $5x - 3y = -30$.

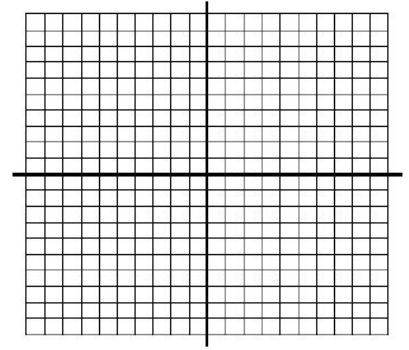
95. Heather's weekly pay varies directly to the number of hours she works at the record store. Her pay is \$174 for 24 hours of work. Find the amount of pay for 40 hours of work.

96. The diameter of a hydrogen atom is 0.000000725 millimeters. Express this in scientific notation.

97. Which property below will make the equation true?

$$6a^2 - 2a = 2a(3a - 1)$$

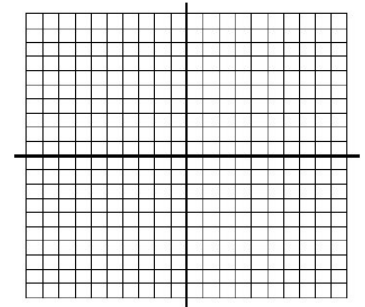
98. Graph $2x - y \geq 3$



99. The difference in cost between a large bag of chips and a small bag of chips was \$0.65. Alicia bought 5 large bags and 3 small bags of chips for her party and spent \$7.25. What was the cost of a small bag of chips?

100. What is the solution to $5 - \frac{r}{2} = 12$?

101. Graph $y = -4/3x + 2$



102. In which table of ordered pairs does y vary directly as x ?

a.

X	1	2	3
Y	2	5	8

c.

X	1	2	3
Y	2	8	16

b.

X	1	2	3
Y	1	4	9

d.

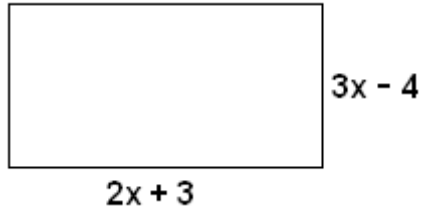
X	1	2	3
Y	4	8	12

103. Simplify: $2x(3x + y) - 4(5x + 9y)$

104. Simplify: $2x^3y(x^2y - 3xy^2)$?

105. Solve: $\frac{x - 2}{18} = \frac{x - 3}{15}$

106. Write an expression that best describes the area of the rectangle below. (Hint: $A = lw$)



107. Simplify $(5x - 2)^2$.

108. What is the slope of the line represented by the equation $-2y = x - 1$?