Summer Math Practice Assignment	**Name:**
Preparing for Geometry (Review of Algebra I Coursework Problems #1-104)	**Due Date:** First Day of School
Entering Geometry Honors (Complete Problems #1-121)	

1. Write an English phrase that would translate into the following mathematical expression.

   $2z - 9$

   Which of the following is equivalent to the expression $2z - 9$?

   - **A.** 9 less than the product of 2 and a number z
   - **B.** The quotient of 2 times a number z and 9
   - **C.** 2 less than the product of 9 and a number z
   - **D.** 2 times the difference of a number z and 9

   Show your work below.

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2. Express the following English phrase using an algebraic expression.

   The product of 17 and a number n.

   Represent "The product of 17 and a number n" mathematically.

   Show your work below.

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3. Write an English phrase that would translate into the following mathematical expression.

$8(z-4)$

Which of the following is equivalent to the expression $8(z-4)$?

- **A.** 8 times the difference of a number z and 4
- **B.** The quotient of 8 times a number z and 4
- **C.** 8 less than the product of 4 and a number z
- **D.** 4 less than the product of 8 and a number z

Show your work below.

4. Order the numbers below from least to greatest.

$\frac{1}{2}, -4, \sqrt{8}, -\frac{5}{2}, 4.1$

Choose the correct answer below.

- **A.** $\frac{1}{2}, -\frac{5}{2}, 4.1, \sqrt{8}, -4$
- **B.** $-\frac{5}{2}, -4, \frac{1}{2}, 4.1, \sqrt{8}$
- **C.** $-4, -\frac{5}{2}, \frac{1}{2}, 4.1, \sqrt{8}$
- **D.** $-4, -\frac{5}{2}, \frac{1}{2}, \sqrt{8}, 4.1$

Show your work below.

5. Subtract.

$-1-(-5)$

$-1-(-5)=$ ☐

Show your work below.

6. Find the sum without the use of a number line.

$\frac{15}{58}+\left(-\frac{5}{29}\right)$

$\frac{15}{58}+\left(-\frac{5}{29}\right)=$ ☐

Show your work below.

7. Subtract.

$\frac{4}{7}-\frac{9}{14}$

$\frac{4}{7}-\frac{9}{14}=$ ☐ (Simplify your answer.)

Show your work below.

8. Evaluate.

$-140 \div 7$

$-140 \div 7 =$ ☐

Show your work below.

9. Multiply.

$2(-1.5)$

$2(-1.5) =$ ☐ (Type an integer or a decimal.)

Show your work below.

10. Perform the indicated division or state that the expression is undefined.

$$\frac{5}{6} \div \left(-\frac{5}{6}\right)$$

Select the correct choice below and fill in any answer boxes in your choice.

- ○ **A.** $\frac{5}{6} \div \left(-\frac{5}{6}\right) =$ ☐ (Simplify your answer.)
- ○ **B.** The solution is undefined.

Show your work below.

11. Simplify the algebraic expression.

$11x + 5x$

$11x + 5x =$ ☐

Show your work below.

12. Simplify the algebraic expression by combining like terms.

$5x^2 + 11x^2$

$5x^2 + 11x^2 =$ ☐ (Simplify your answer.)

Show your work below.

13. Simplify the expression.

$8(3 + t) - 6(t + 1)$

$8(3 + t) - 6(t + 1) =$ ☐

Show your work below.

14. Simplify the expression.

$-(m + 7n - 11)$

$-(m + 7n - 11) =$ ☐

Show your work below.

15. Determine if the given value is a solution to the equation.

$4x - 3 = 17;\ x = 5$

Is $x = 5$ a solution of the equation $4x - 3 = 17$?

- ○ Yes
- ○ No

Show your work below.

16. Tell whether the equation has the ordered pair as a solution.

$y = 5x;\ (0, -10)$

Is $(0, -10)$ a solution of the given equation?

- ○ Yes
- ○ No

Show your work below.

17. Solve the problem using multiplication or division. Check your answer.

$3a = 0.36$

$a =$ [ ] (Type an integer or a decimal.)

Show your work below.

18. Solve and check.

$\frac{4}{7}n = 12$

The solution is n = [ ].
(Simplify your answer.)

Show your work below.

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19. Solve the equation.

$-6x - 1 = 11$

x = [ ]

Show your work below.

---

20. Solve the equation. Check your answer.

$\frac{k-3}{2} = 11$

k = [ ] (Type an integer or a decimal.)

Show your work below.

---

21. Solve the equation. Check your solution.

$2x + 5x - 9 = 47$

x = [ ] (Simplify your answer.)

Show your work below.

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22. Solve the equation. Check your answer.

$b - 1 + 6b = 37$

$b =$ ☐ (Simplify your answer.)

Show your work below.

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23. Solve the equation.

$8n - (6n + 5) = 9$

$n =$ ☐ (Simplify your answer.)

Show your work below.

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24. Solve the equation. Check your solution.

$11 + 4q = 12 + 3q$

$q =$ ☐

Show your work below.

---

25. Solve the equation.

$19x - 7 = 9 + 11x$

$x =$ ☐

Show your work below.

---

26. Solve the equation. Check your solution.

$-8y + 8 = 37y - 7$

y = ☐ (Type an integer or a simplified fraction.)

Show your work below.

27. Solve the equation. Check your answer.

$3(x - 5) = 2(x + 5)$

x = ☐
(Type an integer or a simplified fraction.)

Show your work below.

28. Determine whether the equation is an identity or whether it has no solution.

$3(a - 3) = 6a - (3a - 9)$

The equation (1) _____ .

(1) ○ is an identity
○ has no solution

Show your work below.

29. Determine whether the equation below is an identity or whether it has no solution.

$-6(7x+9) = -42x-54$

Choose the correct answer below.

- ○ The equation is an identity.
- ○ The equation has no solution.

Show your work below.

30. Solve for p.

$G = \frac{8}{7}(p-68)$

p = ☐
(Simplify your answer. Use integers or fractions for any numbers in the expression.)

Show your work below.

31. Solve the equation for y. Then find the value of y for each value of x.

$3x-7y=19;\ x=-1, 0, 1$

Solve the equation for y.

y = ☐
(Simplify your answer. Use integers or fractions for any numbers in the expression.)

When x = −1, the value of y is ☐.
(Type an integer or a fraction.)

When x = 0, the value of y is ☐.
(Type an integer or a fraction.)

When x = 1, the value of y is ☐.
(Type an integer or a fraction.)

Show your work below.

32. Solve the equation for m.

mk + mq = x

m = ☐

Show your work below.

33. Solve the formula for the indicated variable.

$U = \frac{p - h}{s}$ for p

The solution is p = ☐.
(Simplify your answer.)

Show your work below.

34. Solve the formula for the specified variable.

A = P + PRT for R

R = ☐

Show your work below.

35. The scale of a map is 1 cm : 72 km. What is the actual distance between two towns that are 4 cm apart on the map?

The distance between the cities is ☐ km.

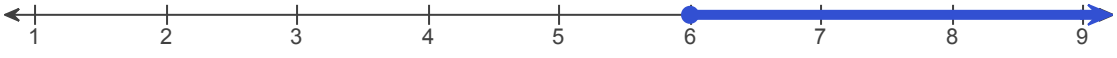
Show your work below.

36. Graph the inequality.

$5 < c$

Which of the following graphs represents the inequality?

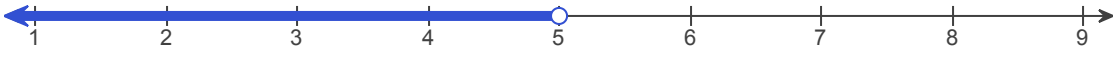
A.


B.


C.


D.


E.

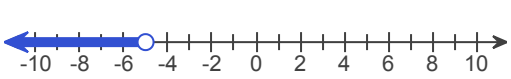

F.


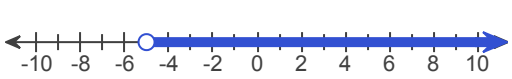
Show your work below.

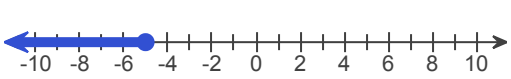
37. Graph the inequality.

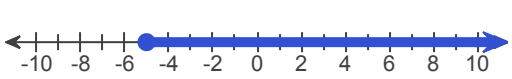
$-5 \geq x$

Choose the correct graph below.

A.


B.


C.


D.


Show your work below.

38. Solve the inequality. Graph and check your solutions.

$-13 \geq y - 6$

y (1) _____

(Simplify your answer.)

Choose the graph of the solution.

A.

B.

C.

D.

E.

(1)
- $<$
- $\leq$
- $\geq$
- $>$

Show your work below.

39. Solve the inequality. Graph and check your solution.

$$\frac{x}{4} \geq -3$$

x (1) _____ (Simplify your answer.)

Choose the correct graph below.

A. 

B. 

C. 

D. 

E. 

(1) ○ ≥
○ ≤
○ <
○ >

Show your work below.

40. Solve the following inequality. Graph and check your solution.

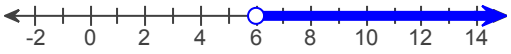
$-24 > -4c$

Solve the inequality.

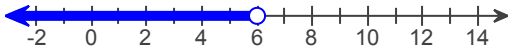
(Simplify your answer. Type an inequality.)

Choose the correct graph below.

A.



B.



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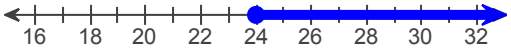

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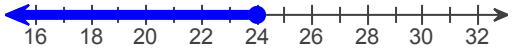


Show your work below.

41. Solve the inequality.

$-21 - 7x \leq 0$

The solution is x (1) _____ .

(1) < > ≤ ≥

Show your work below.

42. Solve the inequality.

$-2(x+1)+9x < -16$

The solution is x (1) _____ .
(Simplify your answer.)

(1)
- ≥
- ≤
- >
- <

Show your work below.

43. Solve for x.
Graph the solution.

$5x+2 < 4x-3$

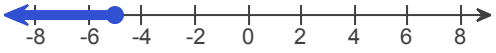
The solution is $x <$.

Which is the correct graph?

A.

B.

C.



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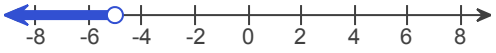


Show your work below.

44. Solve the compound inequality. Graph the solutions.

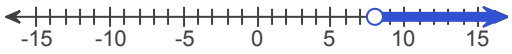
$-6 \le x + 3 < 11$

The solutions are $\{x \mid \square\}$.
(Type an inequality or a compound inequality. Simplify your answer.)

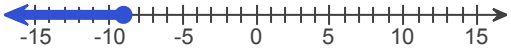
Choose the correct graph below.

A.

B.



C.



D.

E.

F.

Show your work below.

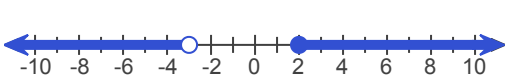
45. Solve the inequality. Graph the solutions.

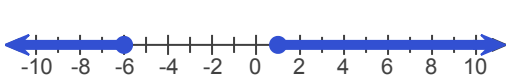
$6t - 2 < -38$ or $2t + 4 > 6$

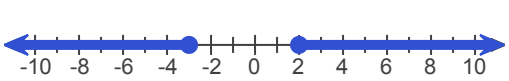
Solve the inequality. Choose the correct answer below.

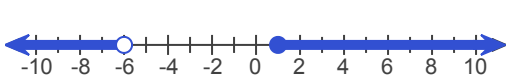
- **A.** $t < -3$ or $t < 2$
- **B.** $t < -3$ or $t > 2$
- **C.** $t < -6$ or $t > 1$
- **D.** $t > -3$ or $t > 2$
- **E.** $t > -3$ or $t < 2$
- **F.** $t > -6$ or $t < 1$
- **G.** $t > -6$ or $t > 1$
- **H.** $t < -6$ or $t < 1$

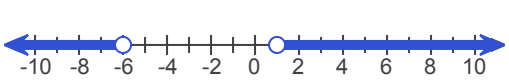
Graph the solutions. Choose the correct graph below.

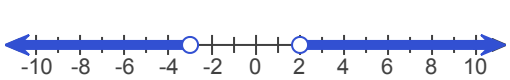
- **A.** 

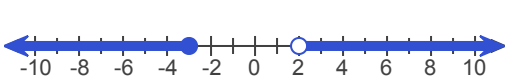
- **B.** 

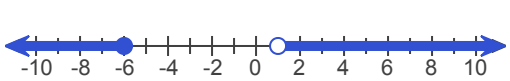
- **C.** 

- **D.** 

- **E.** 

- **F.** 

- **G.** 

- **H.** 

Show your work below.

46. Write the interval as an inequality. Then graph the solutions.

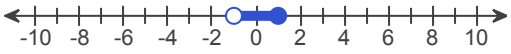
$[-1,1)$

Write the interval as an inequality.

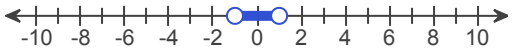
(Type an inequality using x as the variable.)

Choose the correct graph below.

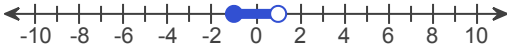
A.



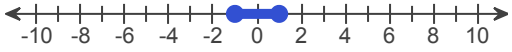
B.



C.



D.



Show your work below.

47. Write the inequality in interval notation. Then graph the interval.

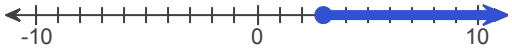
$x > 3$

Write the inequality in interval notation.

Graph the inequality. Choose the correct graph below.

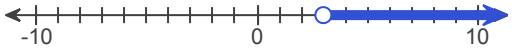
A.

B.



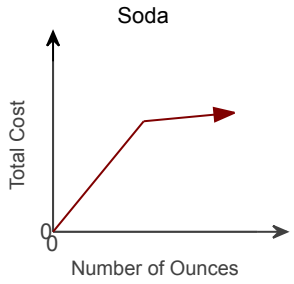
C.

D.



Show your work below.

48. What are the variables of the graph shown to the right? Describe how the variables are related at various points on the graph.



What are the variables of the graph?

- Number of Ounces and Soda
- Soda and Total Cost
- Total Cost and Number of Ounces

How are the variables related at various points on the graph?

- **A.** The soda has two prices depending on the number of ounces in the drink.
- **B.** The cost of the soda increases as the number of ounces in the drink increases. At a certain number of ounces, the cost begins to increase more slowly.
- **C.** The cost of the soda increases as the number of ounces in the drink increases. At a certain number of ounces, the cost levels off to a single price.

Show your work below.

49. Represent the relationship shown in the table using words, an equation, and a graph. Then determine whether the relationship is a linear function.

Mountain Climbing	
Number of Hours Climbing, x	Elevation (ft), y
0	1123
1	1219
2	1315
3	1411

Represent the relationship using words. Choose the correct answer below.

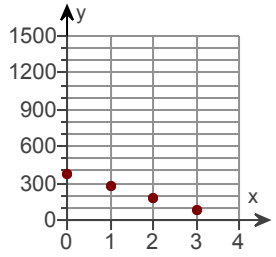
- **A.** Starting from a height of 1123 ft, you gain 96 ft each additional hour of climbing.
- **B.** Starting from a height of 96 ft, you lose 1123 ft each additional hour of climbing.
- **C.** Starting from a height of 96 ft, you gain 1123 ft each additional hour of climbing.
- **D.** Starting from a height of 1123 ft, you lose 96 ft each additional hour of climbing.

Represent the relationship using an equation.

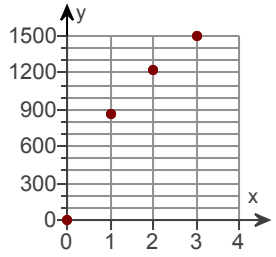
y = [ ] (Simplify your answer. Type an expression using x as the variable.)

Graph the relationship. Choose the correct graph below.

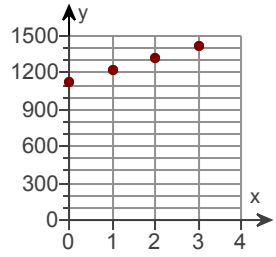
A.



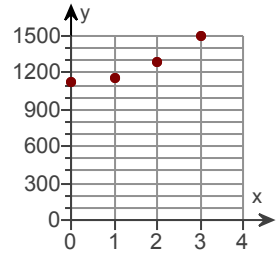
B.



C.



D.



Is the relationship a linear function?

- Yes
- No

Show your work below.

50. Write a function rule that represents the situation.

The price p of a pizza is $6.50 plus $0.90 for each of the t toppings on the pizza.

p = [ ] (Use integers or decimals for any numbers in the expresssion. Do not include the $ symbol in your answer.)

Show your work below.

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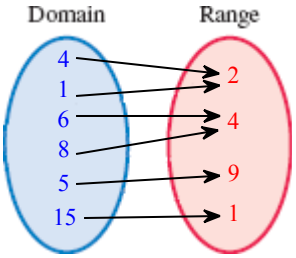
51. Use a mapping diagram to determine whether the relation is a function.

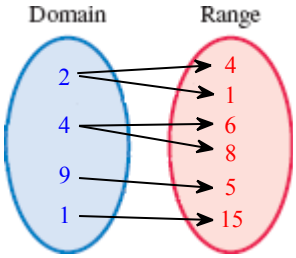
{(2,4), (4,6), (4,8), (9,5), (1,15), (2,1)}

Which of the following mapping diagrams represents the relation?

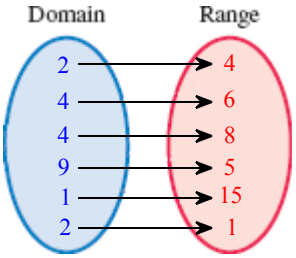
A.



B.



C.



Is the relation a function?

- Yes
- No

Show your work below.

---

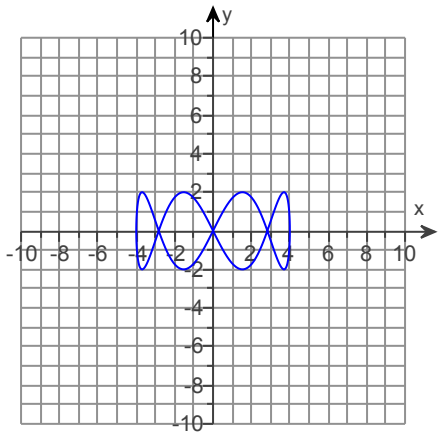
52. What is f(3) for the function f(x) = 4x + 7?

f(3) = [ ]

Show your work below.

---

53. Use the vertical line test to determine whether each relation is also a function.



Using the vertical line test, is this the graph of a function?

- No
- Yes

Show your work below.

---

54. Find the range of the function for the given domain.

$f(x) = 4x + 7; \{-2, -1, 0, 1, 2\}$

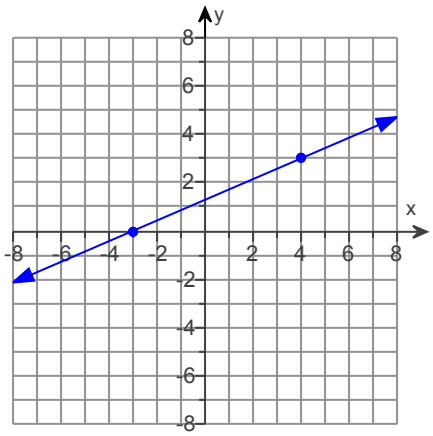
What is the range? Choose the correct answer below.

- **A.** $\{-1, 4, 7, 12, 15\}$
- **B.** $\{-2, 3, 7, 11, 16\}$
- **C.** $\{-1, 4, 6, 12, 15\}$
- **D.** $\{-1, 3, 7, 11, 15\}$

Show your work below.

---

55. Find the slope of the line shown on the graph to the right.



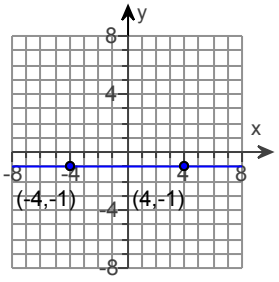
What is the slope of the line? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** The slope of the line is ____. (Type an integer or a simplified fraction.)
- **B.** The slope of the line is undefined.

Show your work below.

---

56. Find the slope of the line.



What is the slope of the line? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** The slope of the line is ____. (Type an integer or a simplified fraction.)
- **B.** The slope of the line is undefined.

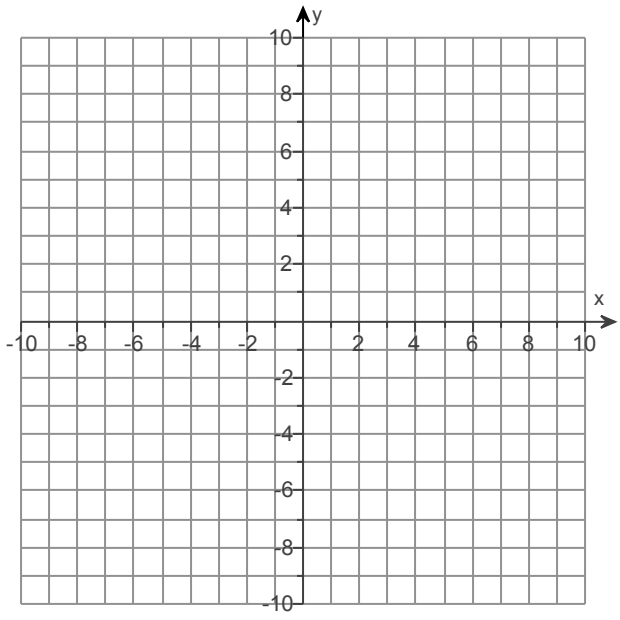
Show your work below.

---

57. Graph the equation.

$y = 2x + 1$

Use the graphing tool to graph the line.



Show your work below.

58. Find the slope and y-intercept of the line whose equation is given.

$y = 4x - 4$

Determine the slope. Select the correct choice below and fill in any answer boxes in your choice.

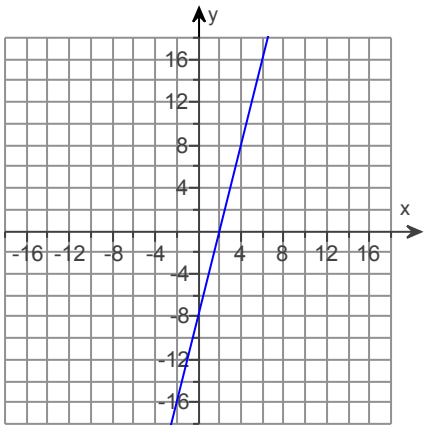
- **A.** m = ☐ (Type an integer or a fraction.)
- **B.** The slope is undefined.

Determine the y-intercept. Select the correct choice below and fill in any answer boxes in your choice.

- **A.** b = ☐ (Type an integer or a fraction.)
- **B.** There is no y-intercept.

Show your work below.

59. Determine the equation of the line.



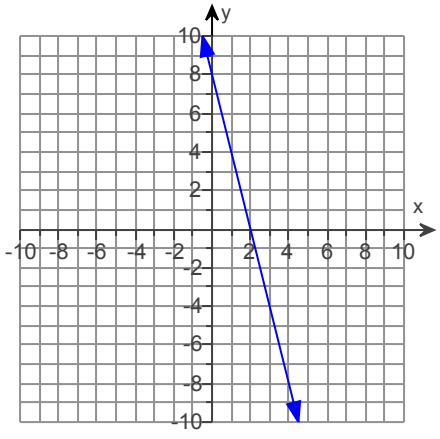
[ ]

(Type an equation. Simplify your answer. Type your answer in slope-intercept form.)

Show your work below.

---

60. Write an equation of the line.



The equation is [ ].

(Type your answer in slope-intercept form.)

Show your work below.

---

61. Write an equation of the line that passes through the given points.

(− 2,6) and (1,3)

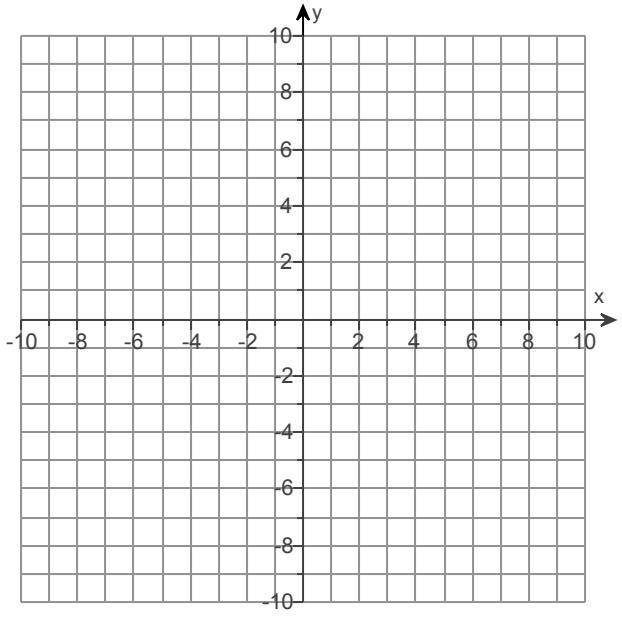
The equation is [ ]. (Type your answer in slope-intercept form.)

Show your work below.

62. Use the slope and y-intercept to graph the equation.

3y + 15x = 0

Use the graphing tool to graph the equation. Use the slope and y-intercept when drawing the line.



Show your work below.

63. Find the x-intercept and the y-intercept of the graph of the equation.

$6x + 4y = 48$

The x-intercept is ____. (Type an integer.)

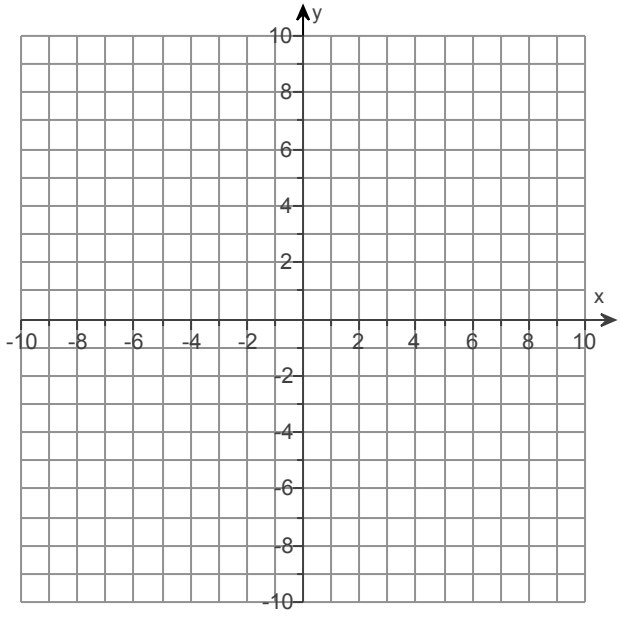
The y-intercept is ____. (Type an integer.)

Show your work below.

64. Graph the linear equation.

$x = -2$

Use the graphing tool to graph the linear equation.



Show your work below.

65. Write an equation in slope-intercept form of the line that passes through the given point and is parallel to the graph of the given equation.

$(-2,-5)$; $y = -4x + 2$

Write an equation for the line in slope-intercept form.

(Simplify your answer. Use integers or fractions for any numbers in the equation.)

Show your work below.

66. Determine whether the graphs of the given equations are parallel, perpendicular, or neither.

$y = x + 12$
$y = -x + 5$

Choose the correct answer below.

- Perpendicular
- Parallel
- Neither

Show your work below.

67. Write an equation in slope-intercept form of the line that passes through the given point and is perpendicular to the graph of the given equation.

$(-4,5)$; $y = \frac{1}{4}x - 2$

Write an equation for the perpendicular line in slope-intercept form.

(Simplify your answer. Use integers or fractions for any numbers in the equation.)

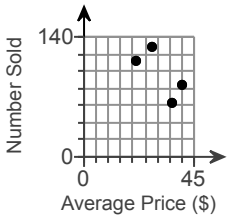
Show your work below.

68. For the table below, make a scatter plot of the data. Describe the type of correlation the scatter plot shows.

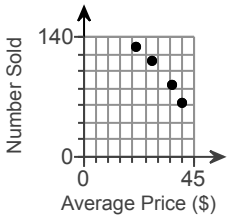
Jeans Sales				
Average Price ($)	21	28	36	40
Number Sold	129	113	83	64

Make a scatter plot of the data. Choose the correct graph below.

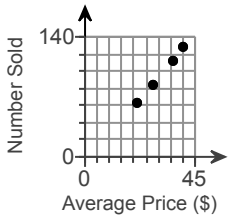
A.



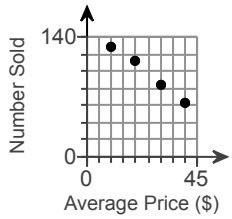
B.



C.



D.



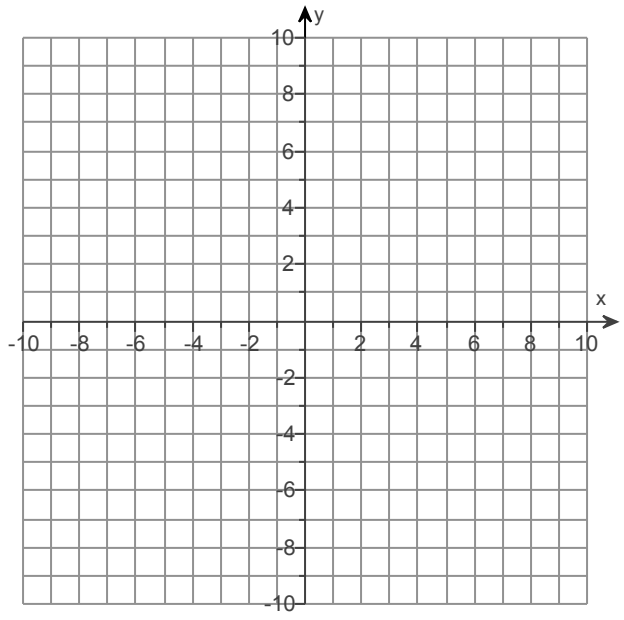
The scatter plot shows (1) _____.

(1)
- a negative correlation
- no correlation
- a positive correlation

Show your work below.

69. Solve the system of equations by graphing.

$$\begin{cases} y = x + 5 \\ y = -4x + 5 \end{cases}$$



Use the graphing tool to graph the system.

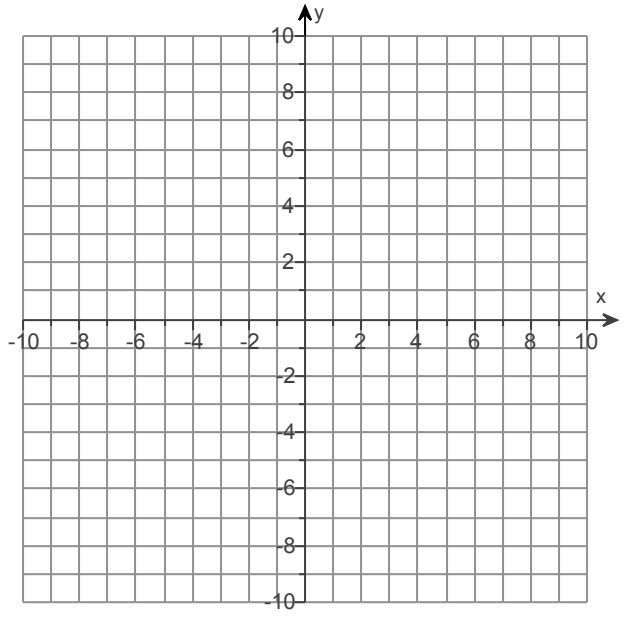
Select the correct choice below and fill in any answer boxes present in your choice.

- **A.** The solution of the system is [ ].
  (Type an ordered pair.)
- **B.** There are infinitely many solutions.
- **C.** There is no solution.

Show your work below.

70. Solve the system by graphing. Tell whether the system has one solution, infinitely many solutions, or no solution.

$y = x + 2$
$y = x - 4$



Use the graphing tool to graph the system.

Select the correct choice below and fill in any answer boxes present in your choice.

- **A.** The solution of the system is [ ].
  (Type an ordered pair.)
- **B.** There are infinitely many solutions.
- **C.** There is no solution.

Show your work below.

71. Solve the system of equations by substitution.

$$x + y = 48$$
$$y = 11x$$

The solution of the system is [ ].
(Simplify your answer. Type an ordered pair.)

Show your work below.

72. Solve the system using substitution. Check your answer.

$$y = -5x + 35$$
$$6y - x + 7 = 0$$

The solution is [ ].
(Simplify your answer. Type integers or simplified fractions. Type an ordered pair.)

Show your work below.

73. Solve the system using elimination.

$$3x + 7y = 6$$
$$2x - 7y = 4$$

The solution is [ ].
(Type an ordered pair.)

Show your work below.

74. Solve the system using elimination.

$$3x + 2y = 8$$
$$x + 5y = 7$$

The solution is [ ]. (Type an ordered pair.)

Show your work below.

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

$$2x + 5y = 12$$
$$2x + 5y = 20$$

Choose the correct answer below.

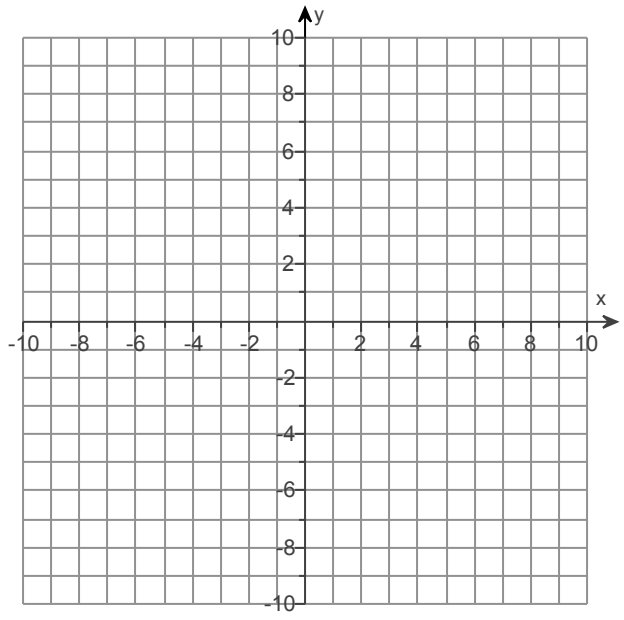
- **A.** The system has no solution.
- **B.** The system has one solution.
- **C.** The system has infinitely many solutions.

Show your work below.

76. Graph the inequality.

$y \geq x - 1$

Use the graphing tool on the right to graph the inequality.



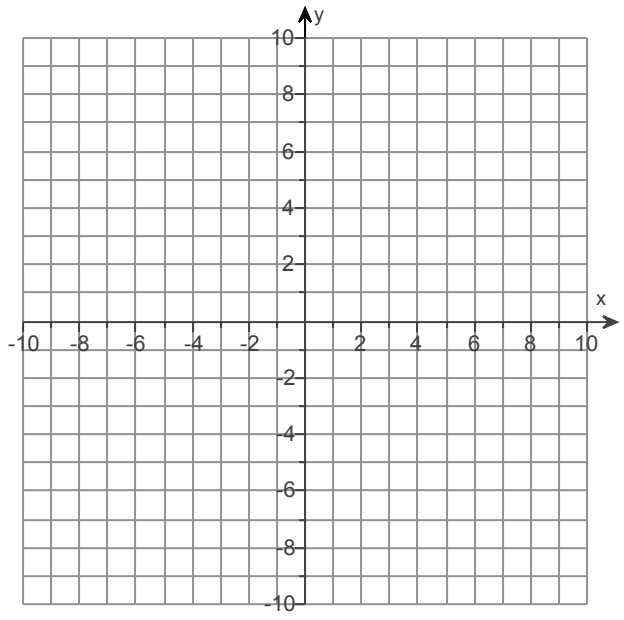
Show your work below.

77. Solve the system of inequalities by graphing.

$y < 2x + 3$

$2x - y \leq 5$

Use the graphing tool to graph the system.



Show your work below.

78. Write an equivalent expression with positive exponents only.

x^4y^{-2}

Which choice is correct?

- **A.** $\frac{1}{x^4y^2}$
- **B.** $(xy)^2$
- **C.** xy^2
- **D.** $\frac{x^4}{y^2}$

Show your work below.

---

79. Simplify the expression.

$2jf^0$

$2jf^0 =$ [ ]

Show your work below.

---

80. Rewrite the following expression using each base only once.

$3^4 \cdot 3^8$

$3^4 \cdot 3^8 =$ [ ]

(Type exponential notation with positive exponents. Simplify your answer.)

Show your work below.

---

81. Multiply and simplify.

$s^9 \cdot s^2$

$s^9 \cdot s^2 =$ ☐

(Type your answer as one base to a nonnegative power.)

Show your work below.

---

82. Simplify the expression.

$$\frac{1}{a^2 a^{-4}}$$

$\frac{1}{a^2 a^{-4}} =$ ☐ (Simplify your answer. Use positive exponents only.)

Show your work below.

---

83. Simplify the expression.

$(c^8)^9$

$(c^8)^9 =$ ☐ (Type exponential notation with positive exponents. Simplify your answer.)

Show your work below.

---

84. Simplify the expression. Write the result without using negative exponents. (Assume all variables represent nonzero real numbers.)

$(c^2)^{-9}$

Show your work below.

$(c^2)^{-9} =$ ☐

(Type exponential notation with positive exponents.)

---

85. Rewrite as a base to a power, if possible.

$\frac{6^7}{6^2}$

Show your work below.

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ○ **A.** $\frac{6^7}{6^2} =$ ☐

  (Type exponential notation with positive exponents.)
- ○ **B.** The expression cannot be simplified.

---

86. Simplify the following. Write answers with positive exponents.

$\frac{b^{-5}}{b^{-7}}$

$\frac{b^{-5}}{b^{-7}} =$ ☐ (Use positive exponents only.)

Show your work below.

---

87. Use the quotient rule for exponents to simplify.

$$\frac{x^9y^3}{x^5y^3}$$

$\frac{x^9y^3}{x^5y^3}$ = ☐

(Type your answer using exponential notation. Use positive exponents only.)

Show your work below.

88. Simplify the following expression.

$$\left(\frac{4}{7}\right)^{-1}$$

$\left(\frac{4}{7}\right)^{-1}$ = ☐ (Type an integer or a simplified fraction.)

Show your work below.

89. Find the degree of the monomial.

$9a^3b^7$

The degree of the monomial is ☐.

Show your work below.

90. Simplify the polynomial by combining like terms.

$13x^2 + 4x^2$

$13x^2 + 4x^2 =$ ☐ (Simplify your answer.)

Show your work below.

---

91. Add the polynomials.

$(5x^2 - 9x + 2) + (7x^3 - 8x)$

The sum is ☐. (Simplify your answer.)

Show your work below.

---

92. Subtract.

$(7x^4 + 4x^3 - 4) - (7x^2 - 9x + 5)$

$(7x^4 + 4x^3 - 4) - (7x^2 - 9x + 5) =$ ☐
(Simplify your answer.)

Show your work below.

---

93. Find the product.

$-4y^4(8y^2+7y-5)$

$-4y^4(8y^2+7y-5) =$ ☐
(Simplify your answer.)

Show your work below.

---

94. Find the GCF of the terms of the polynomial.

$10z^5-70z^4+35z^3$

The greatest common factor is ☐.

Show your work below.

---

95. Factor out the greatest common factor.

$14x^2-49x$

$14x^2-49x =$ ☐

Show your work below.

---

96. Simplify the product.

$(x + 3)(x + 6)$

$(x + 3)(x + 6) =$ ☐

Show your work below.

97. Multiply.

$(5s - 4)(s + 6)$

$(5s - 4)(s + 6) =$ ☐
(Simplify your answer.)

Show your work below.

98. Find the product.

$(x - 5)^2$

$(x - 5)^2 =$ ☐

Show your work below.

99. Find the product.

$(4x + 9)^2$

$(4x + 9)^2 =$ ☐

Show your work below.

---

100. Factor the expression.

$x^2 + 9x + 20$

$x^2 + 9x + 20 =$ ☐

Show your work below.

---

101. Complete the factoring.

$x^2 + 14x + 48$

$x^2 + 14x + 48 = (x + 6)($ ☐ $)$

Show your work below.

---

102. Factor the expression.

$n^2 - 13n + 40$

$n^2 - 13n + 40 =$ ☐

Show your work below.

---

103. Factor the expression.

$x^2 - 36$

$x^2 - 36 =$ ☐

(Type your answer in factored form.)

Show your work below.

---

104. Factor the expression.

$36v^2 - 25$

$36v^2 - 25 =$ ☐

(Type your answer in factored form.)

Show your work below.

---

105. Factor the trinomial. HONORS STUDENTS – COMPLETE ENTIRE PACKET ALL OTHERS STOP AT #104

$v^2 - vz - 6z^2$

$v^2 - vz - 6z^2 =$ ☐

Show your work below.

---

106. Factor.

$9x^2 - 6x - 8$

$9x^2 - 6x - 8 =$ ☐

Show your work below.

---

107. Factor the expression.

$2x^2 + 7x - 4$

$2x^2 + 7x - 4 =$ ☐
(Type your answer in factored form.)

Show your work below.

---

108. Factor the expression.

$2x^2 + 9x - 5$

$2x^2 + 9x - 5 =$ ☐
(Type your answer in factored form.)

Show your work below.

---

109. Factor the expression completely.

$15x^2 - 50x - 40$

$15x^2 - 50x - 40 =$ ☐

Show your work below.

---

110. Factor by grouping.

$56x^3 - 40x^2 + 63x - 45$

$56x^3 - 40x^2 + 63x - 45 =$ ☐

Show your work below.

---

111. Factor by grouping.

$49r^3 + 42r^2 - 42r - 36$

$49r^3 + 42r^2 - 42r - 36 =$ ☐

Show your work below.

---

112. Suppose your friend's parents invest $20,000 in an account paying 6% compounded annually. What will the balance be after 6 years?

The account balance will be $ ☐
(Round to the nearest cent as needed.)

Show your work below.

113. The number of students enrolled at a college is 14,000 and grows 5% each year. Complete parts **(a)** through **(e)**.

a) The initial amount a is [ ].

b) The percent rate of change is 5%, so the growth factor b is 1 + [ ] = [ ].

c) To find the number of students enrolled after one year, you calculate 14,000 • [ ].

d) Complete the equation y = [ ] • [ ] [ ] to find the number of students enrolled after x years.

e) Use your equation to predict the number of students enrolled after 26 years.

After 26 years, there will be [ ] students enrolled.
(Round to the nearest whole number as needed.)

Show your work below.

---

114. Since 2006, the amount of money spent at restaurants in a certain country has increased at a rate of 7% each year. In 2006, about $300 billion was spent at restaurants. If the trend continues, about how much will be spent at restaurants in 2019?

About $[ ] billion will be spent at restaurants in 2019 if the trend continues.
(Round to the nearest whole number as needed.)

Show your work below.

---

115. Suppose that when your friend was born, your friend's parents deposited $2000 in an account paying 4.3% interest compounded quarterly. What will the account balance be after 18 years?

The balance after 18 years will be $[ ].
(Round to the nearest cent as needed.)

Show your work below.

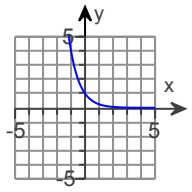
---

116. Graph the exponential function below.

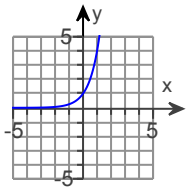
$y = 4^x$

Choose the correct graph below.

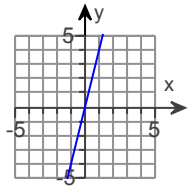
A.



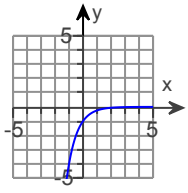
B.



C.



D.



Show your work below.

117. Simplify the following expression. State any excluded values.

$$\frac{35x^2}{40x^8}$$

The simplified form is [ ], where $x \neq$ [ ]. (Use a comma to separate answers as needed.)

Show your work below.

118. Simplify the following expression. State any excluded values.

$$\frac{8p-16}{4p-8}$$

The simplified form is [ ], where $p \neq$ [ ]. (Use a comma to separate answers as needed.)

Show your work below.

119. Reduce the rational expression to lowest terms. Identify all numbers that must be excluded from the domain of the given rational expression.

$$\frac{2t-10}{t^2-25}$$

Reduce the rational expression to lowest terms.

$$\frac{2t-10}{t^2-25} = \square$$

(Simplify your answer.)

Identify all numbers that must be excluded from the domain of the rational expression.

$t \neq$ [ ]

(Use a comma to separate answers as needed.)

Show your work below.

120. Simplify the rational expression. Find all numbers that must be excluded from the domain of the simplified rational expression.

$$\frac{y^2 - 4y - 5}{y^2 + 7y + 6}$$

Simplify the rational expression. Select the correct choice below and fill in any answer boxes in your choice.

$\frac{y^2 - 4y - 5}{y^2 + 7y + 6} =$ ☐ (Simplify your answer. Use positive exponents only.)

Find the numbers that must be excluded from the domain of the simplified rational expression in order for it to be equivalent to the original expression. Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ○ **A.** $y \neq$ ☐ (Use a comma to separate answers as needed.)
- ○ **B.** There are no numbers excluded from the domain.

Show your work below.

121. Simplify the rational expression. Find all numbers that must be excluded from the domain of the simplified rational expression in order for it to be equivalent to the original expression.

$$\frac{x^2 - 2x + 1}{4x - 4}$$

Simplify the rational expression. Select the correct choice below and fill in any answer boxes in your choice.

$\frac{x^2 - 2x + 1}{4x - 4} =$ ☐

(Simplify your answer. Use positive exponents only. Use integers or fractions for any numbers in the expression.)

Find the numbers that must be excluded from the domain of the simplified rational expression in order for it to be equivalent to the original expression. Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ○ **A.** $x \neq$ ☐ (Use a comma to separate answers as needed.)
- ○ **B.** There are no numbers excluded from the domain.

Show your work below.

1. A. 9 less than the product of z and a number z

2. 17n

3. A. 8 times the difference of a number z and 4

4. D. $-4, -\frac{5}{2}, \frac{1}{2}, \sqrt{8}, 4.1$

5. 4

6. $\frac{5}{58}$

7. $-\frac{1}{14}$

8. -20

9. -3.0

10. A. $\frac{5}{6} \div \left(-\frac{5}{6}\right) =$ **−1** (Simplify your answer.)

11. 16x

12. $16x^2$

13. $2t + 18$

14. $-m - 7n + 11$

15. Yes

16. No

17. 0.12

18. 21

19. -2

20. 25

21. 8

22. $\frac{38}{7}$

23. 7

24. 1

25. 2

26. $\frac{1}{3}$

27. 25

28. (1) has no solution

29. The equation is an identity.

30. $\frac{7}{8}G + 68$

31. $\frac{3x - 19}{7}$

$-\frac{22}{7}$

$-\frac{19}{7}$

$-\frac{16}{7}$

32. $\frac{x}{q+k}$

---

33. $sU + h$

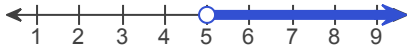
---

34. $\frac{A-P}{PT}$

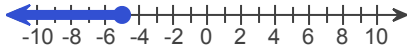
---

35. 288

36.

C. 

37.

C. 

---

38. (1) ≤

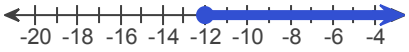
– 7

C. 

---

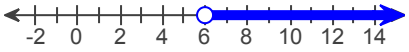
39. (1) ≥

– 12

D. 

---

40. $6 < c$

A. 

---

41. (1) ≥

– 3

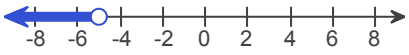
---

42. (1) <

– 2

---

43. -5

D. 

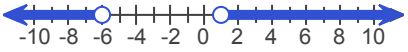
---

44. $-9 \le x < 8$

D. 

---

45. C. $t < -6$ or $t > 1$

E. 

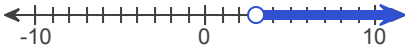
---

46. $-1 \le x < 1$

C. 

---

47. $(3,\infty)$

D. 

---

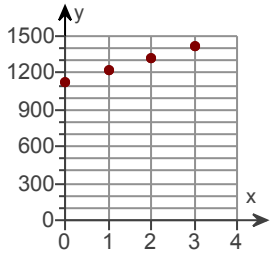
48. Total Cost and Number of Ounces

B.
The cost of the soda increases as the number of ounces in the drink increases. At a certain number of ounces, the cost begins to increase more slowly.

---

49. A. Starting from a height of 1123 ft, you gain 96 ft each additional hour of climbing.

$96x + 1123$

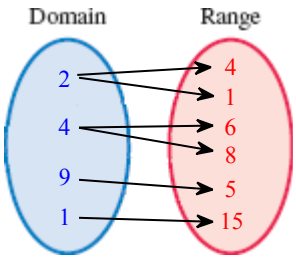
C. 

Yes

---

50. $6.50 + 0.90t$

51.



B.

No

---

52. 19

---

53. No

---

54. D. $\{-1,3,7,11,15\}$

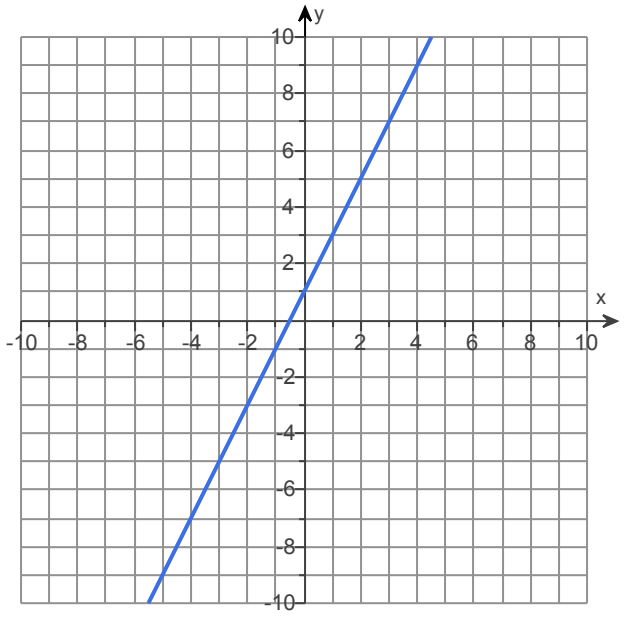
---

55. A. The slope of the line is $\frac{3}{7}$.(Type an integer or a simplified fraction.)

---

56. A. The slope of the line is **0** . (Type an integer or a simplified fraction.)

57.



---

58. A. m = **4** (Type an integer or a fraction.)

A. b = **− 4** (Type an integer or a fraction.)

---

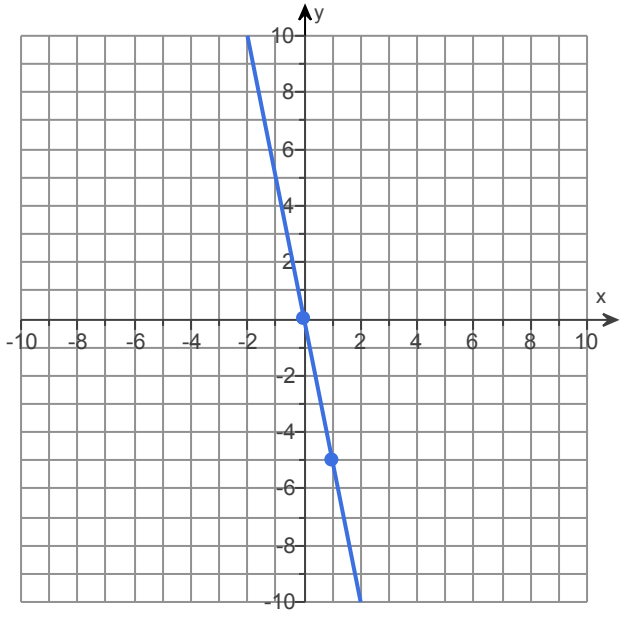
59. $y = 4x - 8$

---

60. $y = -4x + 8$

61. $y = -x + 4$

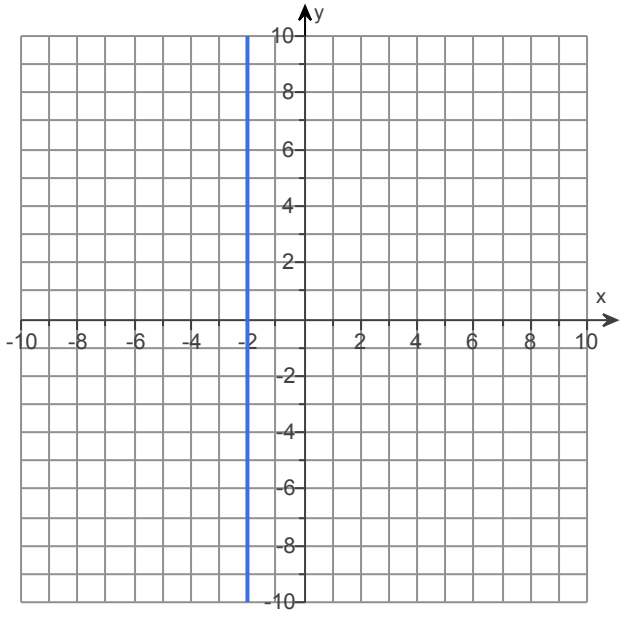
62.



63. 8

12

64.



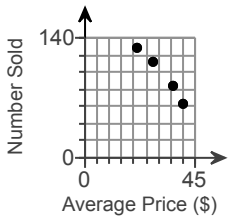
65. $y = -4x - 13$

66. Perpendicular

---

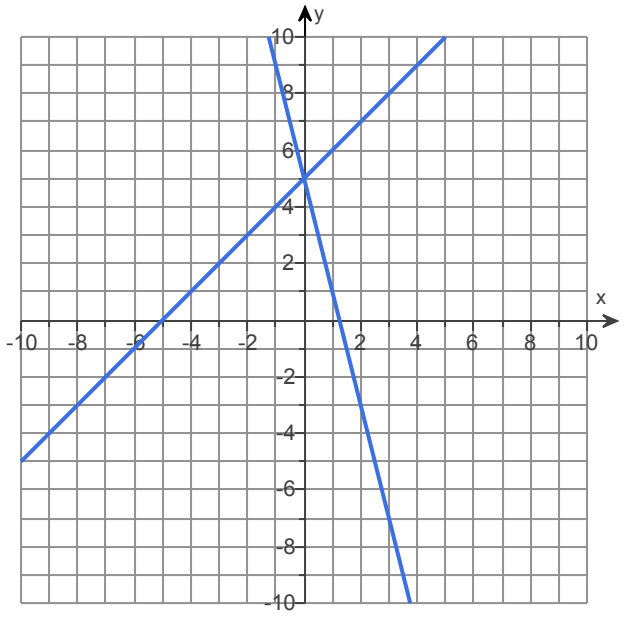
67. $y = -4x - 11$

68.



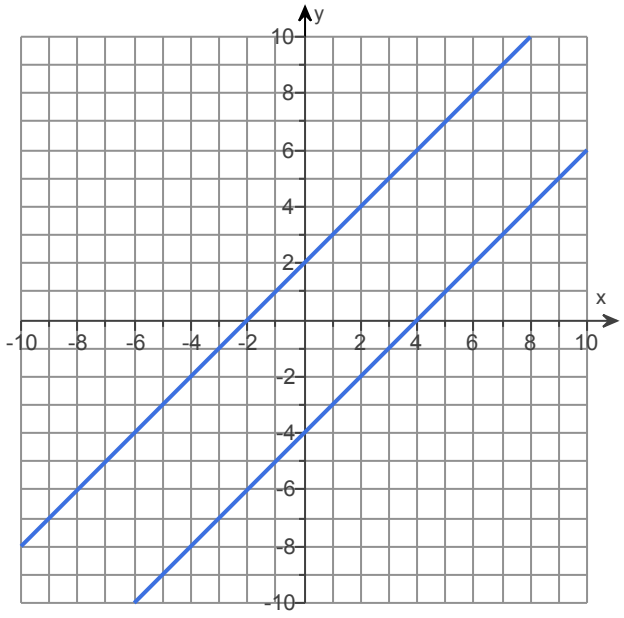
B.

(1) a negative correlation



69.

A. The solution of the system is **(0,5)** .(Type an ordered pair.)



70.

C. There is no solution.

---

71. (4,44)

---

72. (7,0)

---

73. (2,0)

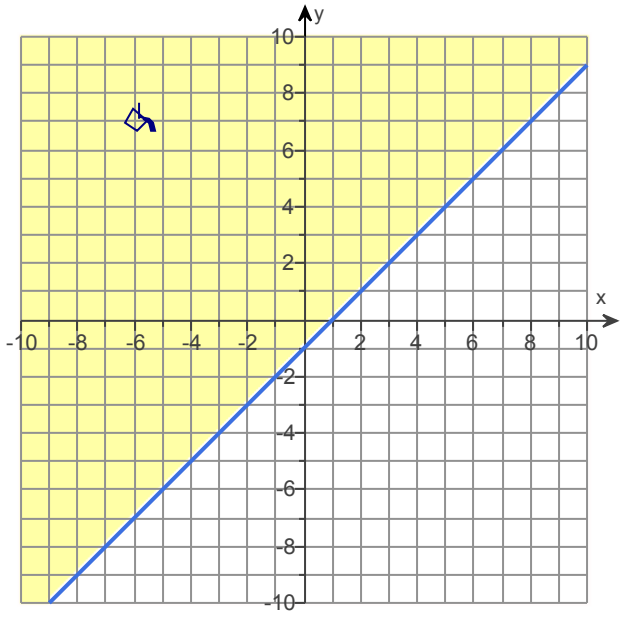
---

74. (2,1)

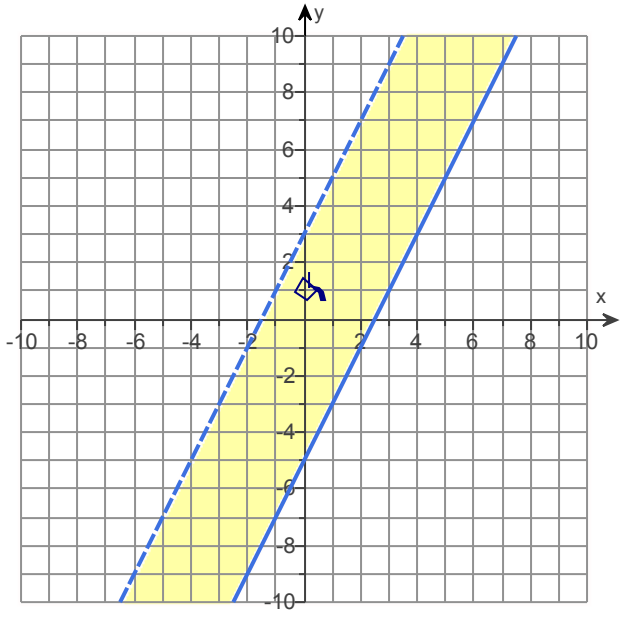
---

75. A. The system has no solution.

76.



77.



78. D. $\frac{x^4}{y^2}$

79. 2j

80. 3^{12}

81. s^{11}

82. a^2

83. c^{72}

84. $\frac{1}{c^{18}}$

85. A. $\frac{6^7}{6^2} =$ **6^5** (Type exponential notation with positive exponents.)

86. b^2

87. x^4

88. $\frac{7}{4}$

89. 10

90. $17x^2$

91. $7x^3 + 5x^2 - 17x + 2$

92. $7x^4 + 4x^3 - 7x^2 + 9x - 9$

93. $-32y^6 - 28y^5 + 20y^4$

94. $5z^3$

95. $7x(2x - 7)$

96. $x^2 + 9x + 18$

97. $5s^2 + 26s - 24$

98. $x^2 - 10x + 25$

99. $16x^2 + 72x + 81$

100. $(x + 5)(x + 4)$

101. $x + 8$

102. $(n - 5)(n - 8)$

103. $(x + 6)(x - 6)$

104. $(6v + 5)(6v - 5)$

105. $(v + 2z)(v - 3z)$

106. $(3x - 4)(3x + 2)$

107. $(x + 4)(2x - 1)$

108. $(x + 5)(2x - 1)$

109. $5(x - 4)(3x + 2)$

110. $\left(8x^2 + 9\right)(7x - 5)$

111. $\left(7r^2 - 6\right)(7r + 6)$

112. 28,370.38

113. 14,000

0.05

1.05

1.05

14,000

1.05

x

49,779

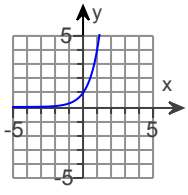
---

114. 723

---

115. 4318.97

---

116. 

B.

---

117. $\frac{7}{8x^6}$

0

---

118. 2

2

---

119. $\frac{2}{t+5}$

5, – 5

---

120. $\frac{y-5}{y+6}$

A. y ≠ **– 6, – 1** (Use a comma to separate answers as needed.)

---

121. $\frac{x-1}{4}$

A. x ≠ **1** (Use a comma to separate answers as needed.)
