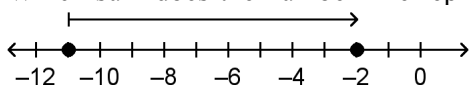


Summer Assignment Alg 1 and Liberal Arts 1 2017**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- _____ 1. Which phrase represents $n \div 12$?
- the quotient of a number and 12
 - the product of a number and 12
- _____ 2. Which expression is equal to “five less than a number multiplied by 3”?
- $3(x - 5)$
 - $5x - 3$
 - $5 - 3x$
 - $3x - 5$
- _____ 3. The side length of an equilateral triangle is $13x - 16$. Which expression represents the perimeter of the triangle?
- $13x - 16$
 - $52x - 64$
 - $39x - 48$
 - $39x - 16$
- _____ 4. On a quiz, Kieran is asked to write an expression that contains at least two factors, a product, a quotient, and an odd coefficient. He writes the expression $\frac{5(7x + 12)}{(4^2 - 3)}$. Does his expression meet all the requirements? If not, explain why not.
- No; none of the expressions 5 , $(7x + 12)$, and $(4^2 - 3)$ represent a product.
 - No; 2 is the only coefficient, and it is even.
 - Yes.
 - No; the expression does not involve a quotient.
- _____ 5. Which expression is the product of two factors?
- $8(5 + n)$
 - $2 + h$
 - $\frac{x}{3}$
 - $t - 9$
- _____ 6. The area of a triangle is given by the formula $A = \frac{1}{2}bh$. What is the area of the triangle if $b = 5$ and $h = 4$?
- 2
 - 2.5
 - 4.5
 - 10

_____ 7. Which sum does the number line represent?



- a. $-11 + (-9)$
- b. $-11 + 9$
- c. $-11 + (-2)$
- d. $-11 + (2)$

_____ 8. What property allows $\left(-\frac{5}{6} + \frac{1}{3}\right) + \frac{5}{3}$ to be simplified to $-\frac{5}{6} + 2$?

- a. Additive inverse property
- b. Additive identity property
- c. Associative property of addition
- d. Commutative property of addition

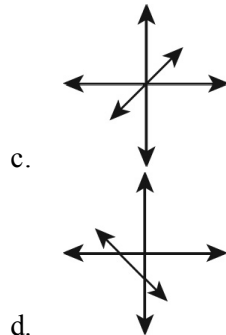
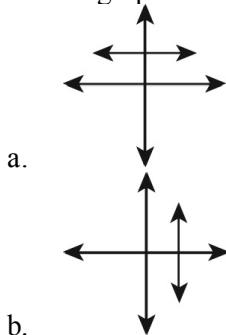
_____ 9. Use properties of exponents to write an equivalent expression for $5^4 \cdot 5^{-7}$.

- a. $\frac{1}{5^{28}}$
- b. $\frac{1}{5^3}$
- c. 5^{11}
- d. $5^{-\frac{4}{7}}$

_____ 10. Which is NOT a function?

- a. $y - x = 6$
- b. $y = 2x^2$
- c. $x = -2$
- d. $y + x = 12$

_____ 11. Which graph is NOT that of a function?



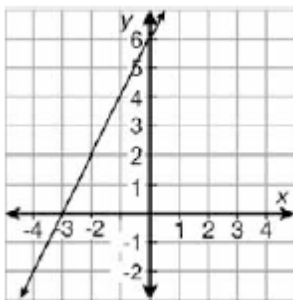
_____ 12. Which of these functions is *not* a linear function?

- a. $f(x) = x$
- b. $f(x) = 3^x$
- c. $f(x) = 3x$
- d. $f(x) = 3x - 2$

- _____ 13. The data in the table below form a function. What values in the table would change the relation to **NOT** be a function?

x	y
4	9
6	1
0	2
-2	7
-8	10

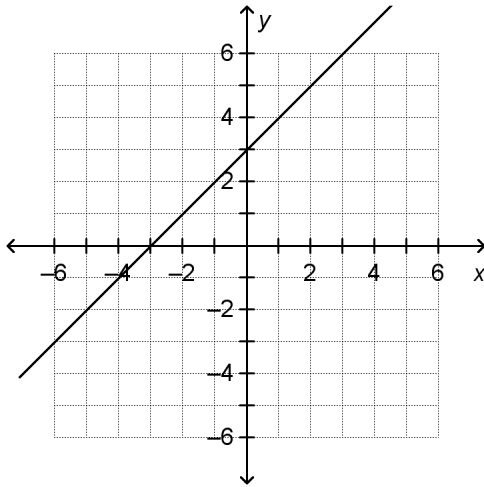
- a. (1, 9)
 b. (-3, 7)
 c. (9, 4)
 d. (6, 5)
- _____ 14. Bailey has 50 pennies. Every day, she gives Bobby a penny. The number of pennies Bobby has is represented by the function $y = x + 50$. How do these functions compare?
- a. They have the same y -intercept and slopes.
 b. They have the same y -intercept and opposite slopes.
 c. They have the same slopes and opposite y -intercepts.
 d. They have opposite slopes and opposite y -intercepts.
- _____ 15. Use the graph of $f(x)$, $g(x) = \frac{1}{2}x + 6$, and the table of $h(x)$. Which best compares the slopes and y -intercepts of the linear functions f and g ?



x	0	1	2	3
$h(x)$	4	6	8	10

- a. The slope of f is greater than the slope of g .
 The y -intercept of f is greater than the y -intercept of g .
- b. The slope of f is less than the slope of g .
 The y -intercept of f is greater than the y -intercept of g .
- c. The slope of f is greater than the slope of g .
 The y -intercept of f is the same as the y -intercept of g .
- d. The slope of f is the same as the slope of g .
 The y -intercept of f is greater than the y -intercept of g .

- _____ 16. The rate of change for linear function A is $\frac{1}{3}$. Its graph has a y -intercept of 1. The graph below represents function B. What do the graphs of these two functions have in common?



- The point (1,4)
 - The y -intercept
 - The slope
 - The x -intercept
- _____ 17. What rational number has -0.875 as its decimal equivalent?

- $-\frac{7}{80}$
- $-\frac{4}{5}$
- $-\frac{7}{8}$
- $-\frac{35}{4}$

Multiple Response

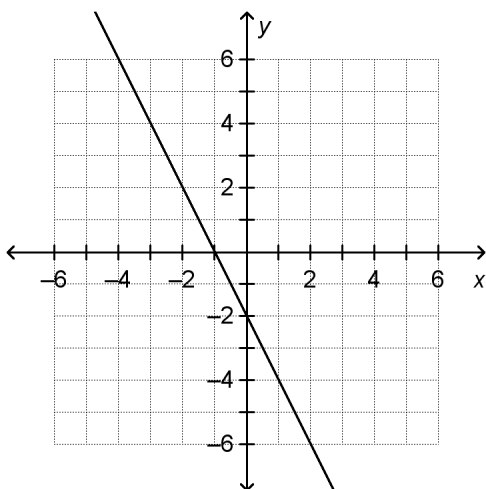
Identify one or more choices that best complete the statement or answer the question.

- _____ 18. Which of the following statements could be represented by the expression $d - 10$?
- 10 less than d
 - 10 more than d
 - d decreased by 10
 - d less than 10
 - d minus 10
 - d increased by 10

_____ 19. Which of the following sets of ordered pairs (x, y) represent y as a function of x ?

- a. $\{(1, 2), (1, 3), (1, 4), (1, 5)\}$
- b. $\{(2.25, 8), (3.25, 8), (2.25, 2), (4.25, 2)\}$
- c. $\{(-1, 1), (0, 0), (1, 1), (2, 2)\}$
- d. $\{(-5, -7.0), (-4, -5.6), (-3, -4.2), (-2, -2.8)\}$
- e. $\{(4, -2), (1, -1), (0, 0), (4, 2)\}$
- f. $\left\{\left(\frac{1}{2}, 0\right), \left(1, \frac{1}{2}\right), \left(\frac{3}{2}, 1\right), \left(2, \frac{3}{2}\right)\right\}$

_____ 20. Which functions have graphs that share the x -intercept, y -intercept, or slope with the graph of the function shown?



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

_____ 21. Which of the following rational numbers fall between 2.7 and 2.8 on a number line?

- a. $\frac{11}{4}$
- b. $2\frac{19}{25}$
- c. $\frac{21}{8}$
- d. $2\frac{41}{50}$
- e. $\frac{277}{100}$
- f. $2\frac{5}{6}$

Short Answer

22. Evaluate $n + 13$ for $n = 24$.

23. Dave and his friends, Taylor and Pat, are comparing the number of CDs that each of them own. Taylor has five more CDs than Pat. Pat has three times as many CDs as Dave.

Part A: Write an expression to represent Taylor's amount of CDs in terms of Dave's amount of CDs. Use T to represent the number of CDs Taylor has.

Part B: If Dave has 22 CDs, how many CDs does Taylor have?

24. Which expression is equivalent to "2 times the sum of a number and 12"?

25. Identify the coefficients in the expression $8x^2 + 9x - 4$.

26. Evaluate $5p^2 \div 4q$ for $p = 4$ and $q = 2$.

27. Find the difference $-4 - (-7)$.

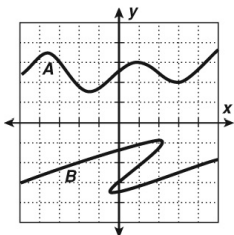
28. Ali caught a fish that weighed $9\frac{1}{2}$ lb. Lisa caught a fish that weighed $5\frac{3}{4}$ lb. How much more did Ali's fish weigh?

29. Two carpenters are building a fence. After 5 minutes, one carpenter is finished $\frac{4}{7}$ of the way and the other is finished $\frac{1}{8}$ of the way. How much of the way ahead of the second carpenter is the first carpenter?

30. A submarine descends to a depth of 480 meters below sea level. Write an integer to represent this situation. Then find the additive inverse of the integer, and tell what it represents.

31. Simplify using exponents: $9^5 \cdot 9^4 \cdot 9^8$.

32. Which of these curves on the graph below could indicate a function?



33. Which relation below is *not* a function?

34. State if the number $\frac{\sqrt{16}}{2}$ is rational or irrational.

35. Write $\frac{9}{40}$ as a decimal.

36. Express 2.125 as a mixed number.

37. Find an expression for the missing value in this table.

z	10	20	40
	31	41	61

38. You are working as an assistant to the zookeeper at the local zoo. The zookeeper has asked you to answer the following question.

An elephant at the zoo drinks 88 gallons of water each day. The table shows the number of days the elephant drinks water and the number of gallons this elephant drinks during that time. Fill in the missing data and write an expression for the number of gallons this elephant will drink in x days.

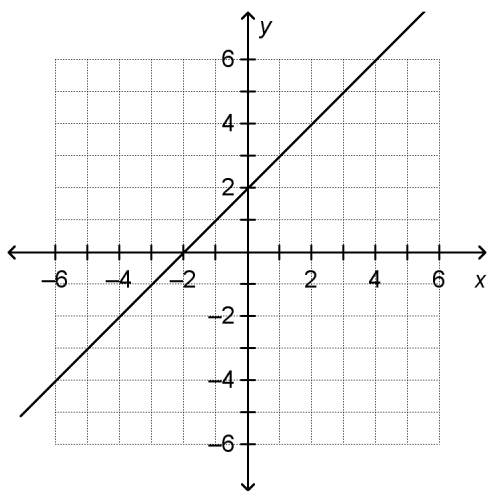
Number of Days	Gallons of Water
1	88
2	176
3	
x	



39. The formula for the area of a rectangle is $A = \ell w$, where A is the area, ℓ is the length, and w is the width. Rewrite the equation so it is solved for w . If the length of the rectangle increases, but the area stays the same, how does the width change? If the length of the rectangle decreases, but the area stays the same, how does the width change?
40. **Part A:** Find and describe the mistake made in solving this equation.
- $$2x - 3 = 15$$
- $$2x - 3 + 3 = 15 - 3$$
- $$2x = 12$$
- $$x = 6$$
- Part B:** Find the correct solution.
41. A submarine is traveling at a depth of 152 feet below sea level. The submarine was given instructions to rise 63 feet and then drop 84 feet.
- Part A:** Write an expression that describes this situation.
Part B: Simplify the expression.
Part C: What is the opposite of the number?
Part D: What does the opposite represent in this situation?
42. Use the Distributive Property to simplify the expression:
 $3(5[2(7-x)])$
43. What is the sum of -12 and 12 ? Explain your reasoning.

44. The table and graph below represent the same function. Use the graph to fill in the missing values in the table.

Input	Output
-2	0
	1
0	
	3
2	

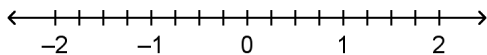


45. Graph the functions $f(x) = -x^2 + 9$ and $f(x) = x^2 - 9$ using tables with x -values $-3, -2, -1, 0, 1, 2,$ and 3 . Describe the differences in the graphs.

Problem

46. Tyler is planting a garden. The garden will contain mums that cost \$7 each and daisies that cost \$10 for 3.
- Write an expression for the cost of m mums and d daisies.
 - How much will it cost for 7 mums and 6 daisies? Show your work.
 - How much will it cost for 3 mums and 9 daisies? Show your work.
 - Which option will cost Tyler the least money?

47. Jayce goes out for a walk. He walks $\frac{5}{4}$ miles from home. He walks back $\frac{1}{2}$ mile before meeting up with his friend Macy. Write an expression (a sum) that describes this situation and use the number line to find the sum. What is the meaning of this sum?



48. Emily thinks that $-\frac{11}{6} - \left(-\frac{2}{3}\right)$ is $-\frac{5}{2}$. Her work is shown below. Identify the error that Emily made.

Then correct Emily's error and find the correct difference. Show your work.

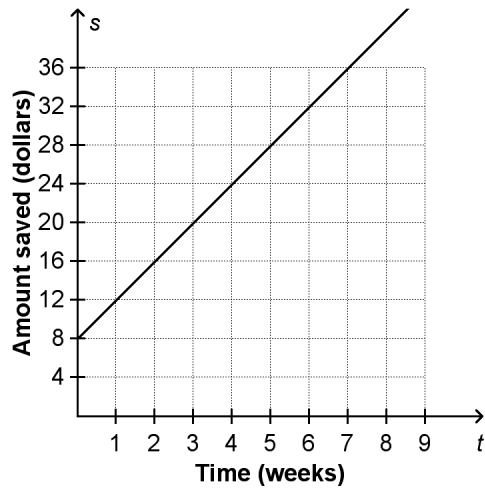
$$\begin{aligned} -\frac{11}{6} - \left(-\frac{2}{3}\right) &= -\frac{11}{6} + \left(-\frac{2}{3}\right) \\ &= -\frac{11}{6} + \left(-\frac{4}{6}\right) \\ &= -\frac{15}{6} \\ &= -\frac{5}{2} \end{aligned}$$

49. Write three expressions that are equivalent to 2^6 using three different properties of integer exponents. Show why the expressions are equivalent.

Name: _____

ID: A

50. Both William and Cynthia are saving to buy a \$75 smart phone. William already has \$15 saved, and Cynthia has \$8 saved. William saves \$3 per week. Cynthia's cumulative savings are shown in the graph, where s is the amount of money saved and t is the time since saving began, in weeks.



- Who saves more money each week? Explain.
- Who will be able to buy the phone first? Explain.