

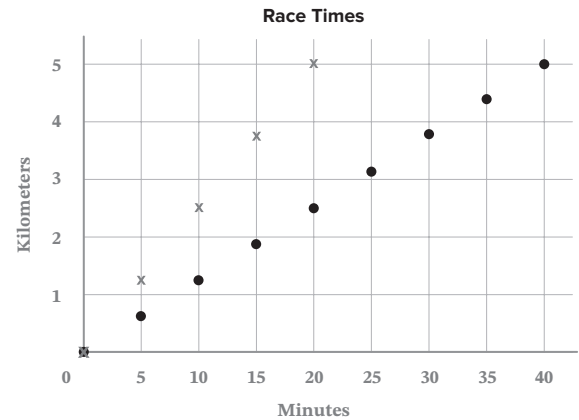
## Unit 2 Test: Linear Equations and Functions

### Open Response Question

- 1) Hanna,  $H(x)$ , and Ester,  $E(x)$ , were running a race with a distance of 5 kilometers. Every 5 minutes their race tracker recorded their time and total distance ran.

Hannah's scores are recorded with an x. Ester's scores are recorded with a closed point.

- A) Determine the equation for  $H(x)$  and  $E(x)$ .



- B) Explain what the slope means for each runner.

- C) Explain if this graph shows discrete or continuous functions.

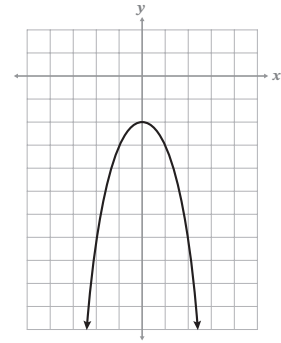
- D) Use your equations to determine  $(20, y)$ . Who is the winner of the race?

CONTINUE

**Multiple Choice**

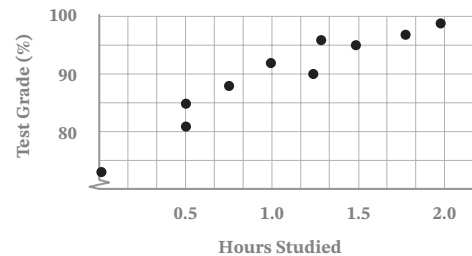
\_\_\_\_\_ 2) Given the graph of the relation, provide the domain and range of the relation in interval notation.

- A) Domain:  $(-\infty, \infty)$ , Range:  $(-\infty, -2)$
- B) Domain:  $(-\infty, \infty)$ , Range:  $[-2, \infty)$
- C) Domain:  $(-\infty, -2]$ , Range:  $(-\infty, \infty)$
- D) Domain:  $(-\infty, \infty)$ , Range:  $(-\infty, -2]$



\_\_\_\_\_ 3) The correlation coefficient is  $r = 0.94$ . Determine the correlation and its meaning given the graph.

- A) There is a weak negative correlation. As study time increases, test grades increase.
- B) There is a strong negative correlation. As study time increases, test grades increase.
- C) There is a strong positive correlation. As study time increases, test grades increase.
- D) There is a weak positive correlation. As study time increases, test grades increase.



\_\_\_\_\_ 4) Determine the equation and correlation coefficient that *best* match the scatter plot in problem 3.

- A)  $y = 12.22x + 77$ ;  $r = -0.95$
- B)  $y = 12.22x + 77$ ;  $r = 0.95$
- C)  $y = -12.22x + 77$ ;  $r = -0.95$
- D)  $y = -12.22x - 77$ ;  $r = 0.95$

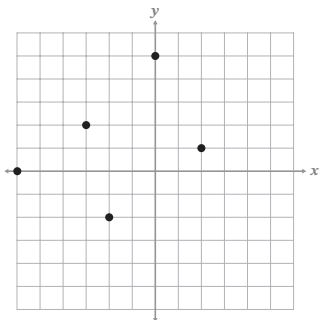
\_\_\_\_\_ 5) Emlin works at a pizza shop and earns \$7.25 per hour. After 5 hours of work, Emlin had earned a total of \$58.25. Write an equation in slope-intercept form.

- A)  $y = 7.25x + 22$
- B)  $y = 7.25x$
- C)  $y - 58.25 = 7.25(x - 5)$
- D)  $y = 7.25x + 58.25$

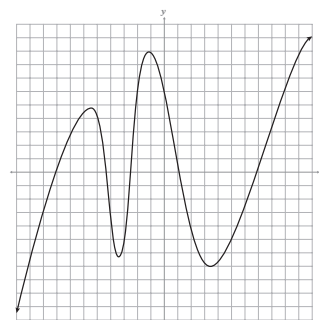
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\_\_\_\_\_ 6) Determine which graph is not a function.

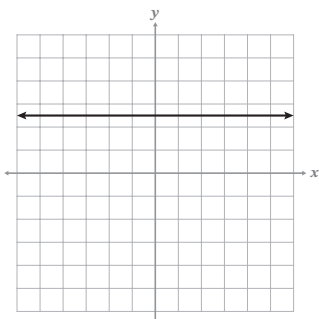
A)



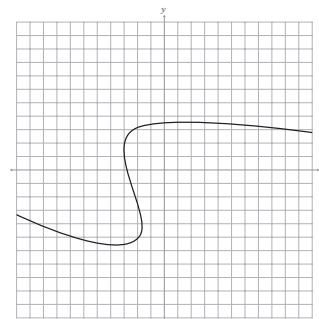
B)



C)



D)



\_\_\_\_\_ 7) Given  $h(x) = 3x + 5$ , find  $h(-4)$ .

A) -3

B) -7

C) 7

D) 17

\_\_\_\_\_ 8) Find the formula and  $a_{15}$  in the arithmetic sequence:  $\{-6, -3, 0, 3, 6, \dots\}$

A)  $a_n = 3 - 6(n - 1)$ ;  $a_{15} = 36$

B)  $a_n = -6 + 3(n - 1)$ ;  $a_{15} = 36$

C)  $a_n = -6 + 3(n - 1)$ ;  $a_{15} = 42$

D)  $a_n = 3 - 6(n - 1)$ ;  $a_{15} = 42$

\_\_\_\_\_ 9) Determine the common difference of the arithmetic sequence:  $\{-2, -\frac{3}{2}, -1, -\frac{1}{2}, 0, \dots\}$

A) -2

B)  $-\frac{1}{2}$

C)  $\frac{1}{2}$

D) 2

\_\_\_\_\_ 10) Determine the set of ordered pairs that is true for  $f(x) = x$ .

A)  $\{(-2, 2), (-1, 1), (0, 0)\}$

B)  $\{(2, -2), (1, -1), (0, 0)\}$

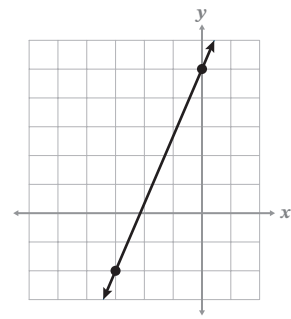
C)  $\{(-2, -2), (-1, -1), (0, 0)\}$

D)  $\{(2, 2), (-1, 1), (0, 0)\}$

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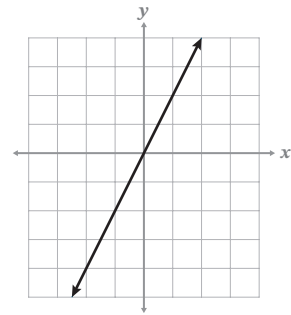
\_\_\_\_\_ 11) Write the equation of the line in point-slope form using the point in Quadrant III.

- A)  $y + 2 = \frac{3}{7}(x + 3)$
- B)  $y + 3 = \frac{3}{7}(x + 2)$
- C)  $y + 3 = \frac{7}{3}(x + 2)$
- D)  $y + 2 = \frac{7}{3}(x + 3)$



\_\_\_\_\_ 12) Determine the equation of the function  $g(x)$ .

- A)  $g(x) = -2x$
- B)  $g(x) = -\frac{1}{2}x$
- C)  $g(x) = \frac{1}{2}x$
- D)  $g(x) = 2x$



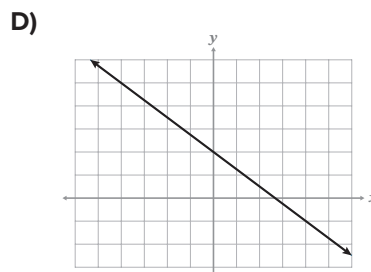
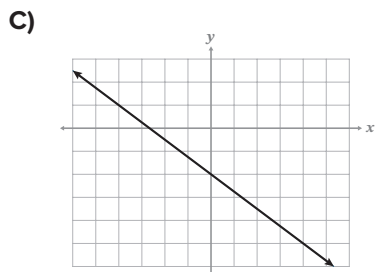
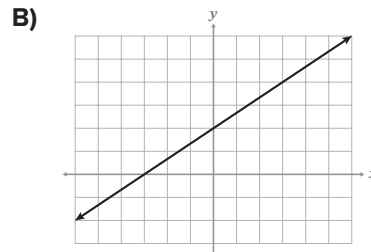
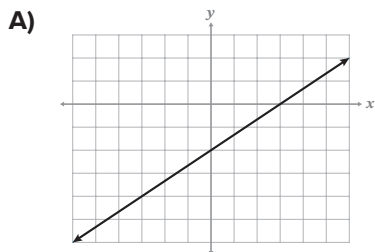
\_\_\_\_\_ 13) Palmer sells bottled water and iced tea at a local golf course. Bottled water ( $b$ ) was sold for \$2 per bottle and iced tea ( $t$ ) for \$3 per bottle. Last week the golf course earned \$208 selling bottled water and iced tea. Write a linear equation that represents the money earned from selling drinks.

- A)  $3b + 2t = 208$
- B)  $2b + 3t = 208$
- C)  $(2b)(3t) = 208$
- D)  $t - 3 = 2(b - 208)$

\_\_\_\_\_ 14) Write the equation of the line through the points  $(-3, 2)$  and  $(-5, 6)$ .

- A)  $f(x) = -\frac{1}{2}x + 6$
- B)  $f(x) = -2x - 6$
- C)  $f(x) = -\frac{1}{2}x - 4$
- D)  $f(x) = -2x - 4$

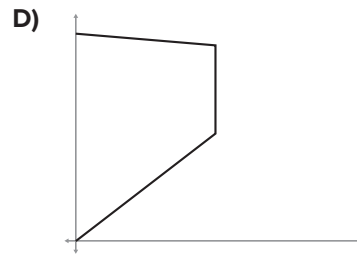
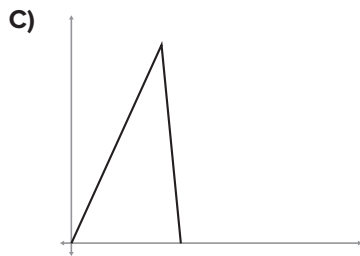
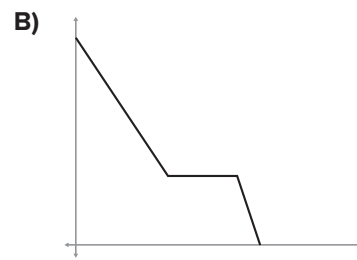
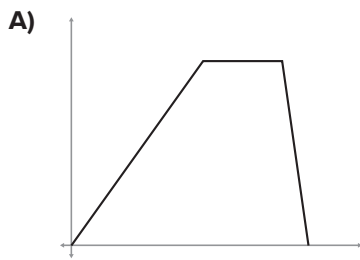
\_\_\_\_\_ 15) Graph  $f(x) = -\frac{3}{4}x - 2$ .



CONTINUE



\_\_\_\_\_ 23) Shaq saved \$100 every month for 6 months, he stopped for 3, then spent \$200 each month until he ran out of money in his account. Choose the graph that *best* demonstrates the given scenario where time is the independent variable.



\_\_\_\_\_ 24) Determine the y-intercept of the equation  $5x - 6y = 3$ .

A)  $-2$

B)  $-\frac{1}{2}$

C)  $\frac{3}{5}$

D)  $\frac{5}{3}$

\_\_\_\_\_ 25) Josie's Juice Bar made a profit of \$250 each day. They charged \$5 per cup of juice,  $j$ , and paid \$2 for the pounds of fruit,  $f$ , to make the juice. The equation  $250 = 5j - 2f$  can be used to calculate the amount of juice sold related to the fruit used. What does the ordered pair  $(70, 50)$  mean as a solution when (juice, fruit)?

A) Josie earns \$70 selling juice, and she spends \$50 on fruit.

B) Josie sold 50 cups of juice and used 70 pounds of fruit.

C) Josie sold 70 cups of juice and used 50 pounds of fruit.

D) Josie sold 70 cups of juice and made \$50.

