Algebra 1 Quick-Quiz-12152023

Question 1.

If $f(x) = x^2 - 2x - 8$ and $g(x) = \frac{1}{4}x - 1$, for which values of $x$ is $f(x) = g(x)$?

(1) $-1.75$ and $-1.438$

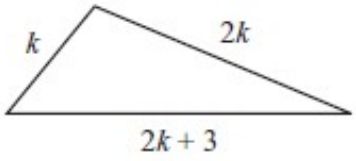
(2) $-1.75$ and 4

(3) $-1.438$ and 0

(4) 4 and 0

Question 2

The dimensions of a triangle, in units, are represented by expressions, as shown in the diagram below.




Which of the following expressions represents the perimeter, in units, of the triangle?

A. $4k^3 + 3$

B. $5k^3 + 3$

C. $4k + 3$

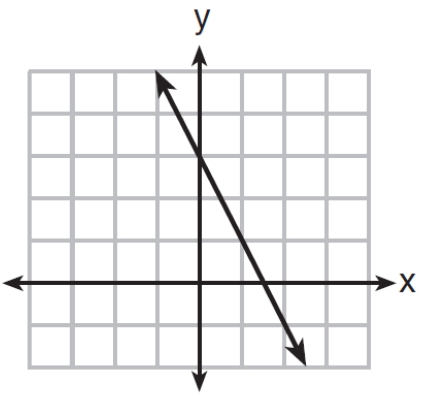
D. $5k + 3$

Question 3.

Which function has a constant rate of change equal to $-3$?

| x | y |
|---|---|
| 0 | 2 |
| 1 | 5 |
| 2 | 8 |
| 3 | 11 |

(1)




(3)

$\{(1,5), (2,2), (3,-5), (4,4)\}$

(2)

$2y = -6x + 10$

(4)

Question 4.

A ball was thrown upward in the air. The height, in feet, of the ball above the ground $t$ seconds after being thrown can be determined by the expression $-16t^2 + 40t + 3$. What is the meaning of 3 in the expression? Select the correct answer.

A. The ball takes 3 seconds to reach its maximum height.

B. The ball takes 3 seconds to reach the ground.

C. The ball was thrown from a height of 3 feet.

D. The ball reaches a maximum height of 3 feet.

Question 5.

A local theater sells admission tickets for $9.00 on Thursday nights. At capacity, the theater holds 100 customers. The function $M(n) = 9n$ represents the amount of money the theater takes in on Thursday nights, where $n$ is the number of customers. What is the domain of $M(n)$ in this context? Select the correct answer.

A. all whole numbers

B. all non-negative rational numbers

C. all non-negative integers that are multiples of 9

D. all non-negative integers less than or equal to 100

Question 6.

Caroline knows the height and the required volume of a cone-shaped vase she is designing. Which formula can she use to determine the radius of the vase? Select the correct answer.

*(Note: the formula for the volume of a cone is given on the PARCC formula sheet for students' reference: $V = \frac{1}{3}\pi r^2 h$.)*

A. $r = \sqrt{\frac{V}{3\pi h}}$ B. $r = \sqrt{\frac{3V}{\pi h}}$ C. $r = \frac{\sqrt{3V}}{\pi h}$ D. $r = \pm\sqrt{\frac{3V}{\pi h}}$

Question 7.

Which of the following is **not** a solution of the equation below?

$$3x(x-1)(x-2) = 0$$

A. $x = 0$

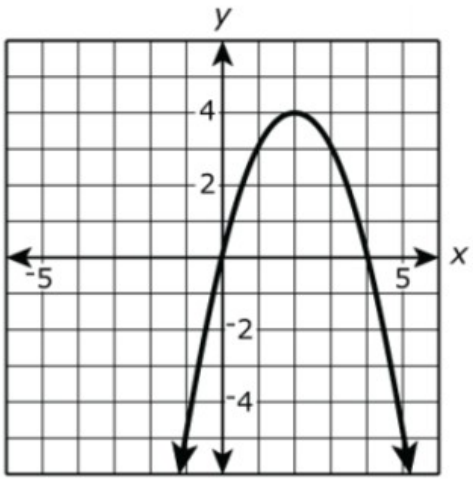
B. $x = 1$

C. $x = 2$

D. $x = 3$

Question 8.

The function $f(x) = 4x - x^2$ is graphed as shown.




With each given interval state whether the function is increasing or decreasing:

(a) $x < 0$
(b) $0 < x < 2$
(c) $2 < x < 4$
(d) $x > 4$

Question 9.

A linear equation is shown below.

$$y = \frac{2}{5}x + 2$$

What is the value of $x$ when $y = 2\frac{2}{3}$?

A. $3\frac{3}{4}$

B. $3\frac{1}{15}$

C. $1\frac{2}{3}$

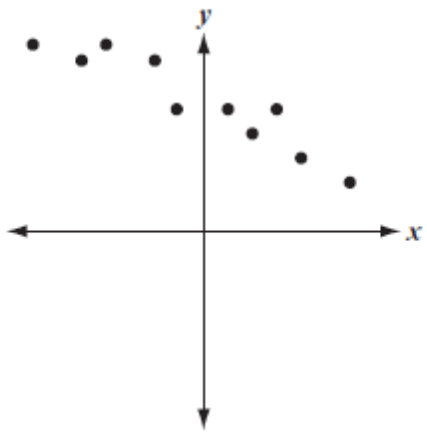
D. $1\frac{1}{9}$

Question 10.

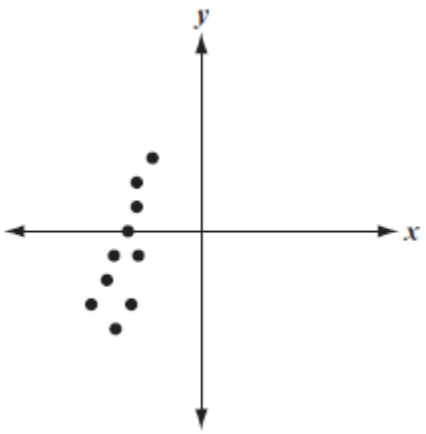
Tomás made a scatterplot of data he collected. He determined that the $y$-**intercept** of the line of best fit for the scatterplot is negative.

Which of the following could be the scatterplot Tomás made?

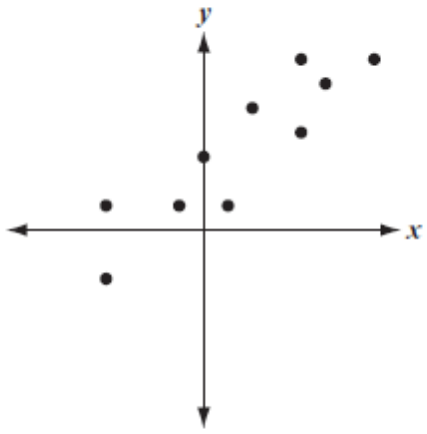
A.




C.



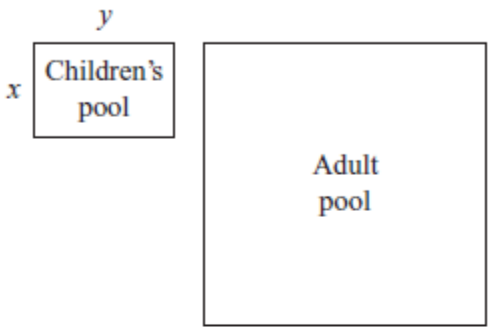

B.




D.

Bonus Question
Question 11

The children's pool and the adult pool in a recreation center are both in the shape of right rectangular prisms. In the diagram below, the two rectangles represent the children's pool and the adult pool.




Define $x$ and $y$ as follows:

- $x$ = the width, in yards, of the children's pool
- $y$ = the length, in yards, of the children's pool

a. Write an expression using $x$ and $y$ to represent the area of the children's pool.

The adult pool has the following measurements:

- The width of the adult pool is 3 times the width of the children's pool.
- The length of the adult pool is 2 times the length of the children's pool.

b. Write an expression using $x$ and $y$ to represent the area of the adult pool.

c. What is the ratio of the area of the children's pool to the area of the adult pool? Show or explain how you got your answer.