

Algebra 1 Quick Quiz 12102024

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 (3) -1.438 and 0
(2) -1.75 and 4 (4) 4 and 0

Question 2

Each day Toni records the height of a plant for her science lab. Her data are shown in the table below.

Day (n)	1	2	3	4	5
Height (cm)	3.0	4.5	6.0	7.5	9.0

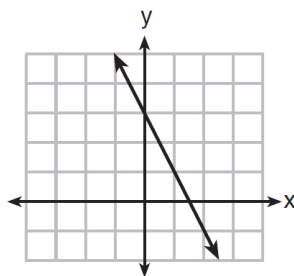
The plant continues to grow at a constant daily rate. Write an equation to represent $h(n)$, the height of the plant on the n th day.

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.

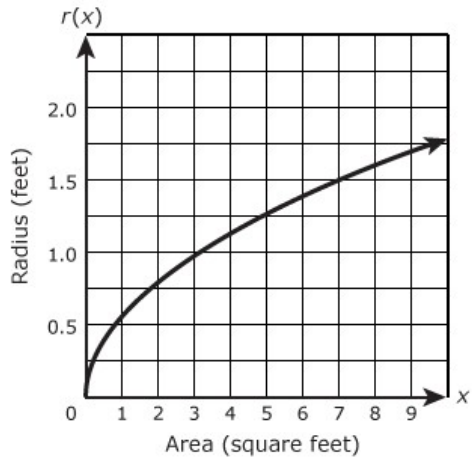
Caroline knows the height and the required volume of a cone-shaped vase she is designing. Which formula can she use to determine the radius of the vase? Select the correct answer.

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.

The function $r(x)$ represents the radius of a circle for a given area x . A graph of the function is shown in the figure.

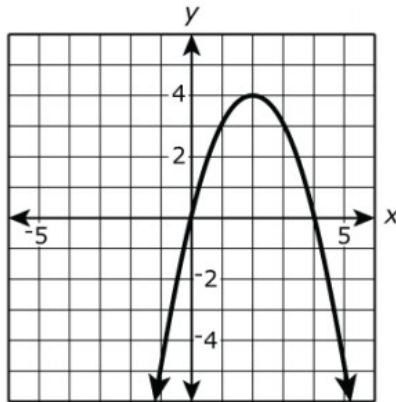


According to the graph what is the approximate average rate of change in the radius of the circle as the area increases from 3 square feet to 7 square feet?

- A. 0.125 foot per square foot
- B. 0.25 foot per square foot
- C. 0.5 foot per square foot
- D. 8 feet per square foot

Question 8.

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



Part A

Drag the correct word to the box with each given interval to indicate whether the function is increasing or decreasing on that interval.

(Note: The boxes "Increasing" and "Decreasing" can be selected multiple times.)

Increasing		Decreasing	
$x < 0$	$0 < x < 2$	$2 < x < 4$	$x > 4$

For each of the 4 sections directly above state whether the function is **Increasing** or **Decreasing**.

Question 9.

You should be able to figure this out without graphing software but you will need to use a calculator though.

A landscaper is creating a rectangular flower bed such that the width is half of the length. The area of the flower bed is 34 square feet. Write and solve an equation to determine the width of the flower bed, to the *nearest tenth of a foot*.

Question 10.

The equation to determine the weekly earnings of an employee at The Hamburger Shack is given by $w(x)$, where x is the number of hours worked.

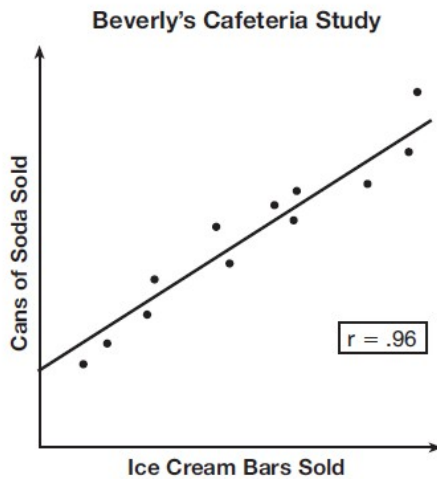
$$w(x) = \begin{cases} 10x, & 0 \leq x \leq 40 \\ 15(x - 40) + 400, & x > 40 \end{cases}$$

Determine the difference in salary, *in dollars*, for an employee who works 52 hours versus one who works 38 hours.

Bonus Question

Question 11

Beverly did a study this past spring using data she collected from a cafeteria. She recorded data weekly for ice cream sales and soda sales. Beverly found the line of best fit and the correlation coefficient, as shown in the diagram below.



Given this information, which statement(s) can correctly be concluded?

- I. Eating more ice cream causes a person to become thirsty.
- II. Drinking more soda causes a person to become hungry.
- III. There is a strong correlation between ice cream sales and soda sales.

- (1) I, only
- (2) III, only
- (3) I and III
- (4) II and III