

# Algebra Quick Quiz 02122020

## Question 1

A scientist recorded the growth of a certain bacteria in the table below.

Time Elapsed (in minutes)	Number of Bacteria
0	26
15	52
30	104
45	208
60	416

- What is the number of bacteria when the time elapsed is 75 minutes?
- Explain the relationship between the time elapsed and the number of bacteria.

## Question 2

Andrea has \$20 in her savings account. She will add \$3 per week to her savings account for  $n$  weeks. Write an algebraic expression to show the total amount of money Andrea will have in her savings account after  $n$  weeks.

### Question 3.

The equation below shows the profit,  $p$ , from selling  $n$  cups of lemonade.

$$p = 2n - 10$$

Which of the following best describes the relationship between  $p$  and  $n$ ?

- A. As  $n$  increases,  $p$  decreases.
- B. As  $n$  increases,  $p$  increases.
- C. As  $n$  increases,  $p$  stays the same.
- D. As  $n$  increases,  $p$  sometimes increases and sometimes decreases.

### Question 4.

Which expression is equivalent to

$$\frac{x^2 - 16}{x^2 - 9x + 20} \text{ for } x \neq 4?$$

- A.  $\frac{x+4}{x+5}$
- B.  $\frac{x+4}{x-5}$
- C.  $\frac{x-4}{x+5}$
- D.  $\frac{x-4}{x-5}$

## Question 5.

Shelley spends \$10 on hamburger meat every week.

- Let  $x$  represent the price, in dollars, for 1 pound of hamburger meat.
- Let  $y$  represent the number of pounds of hamburger meat Shelley buys.

Which equation shows the relationship between  $x$  and  $y$ ?

A.  $y = 10x$

B.  $y = 10 - x$

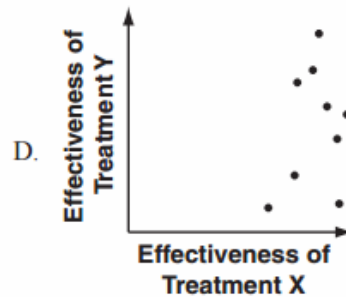
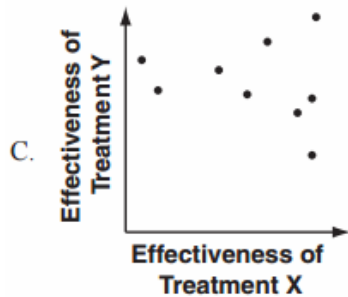
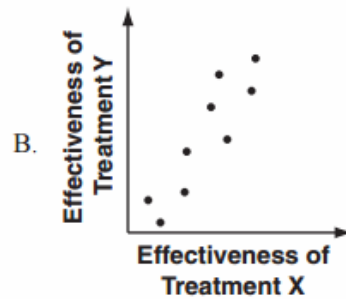
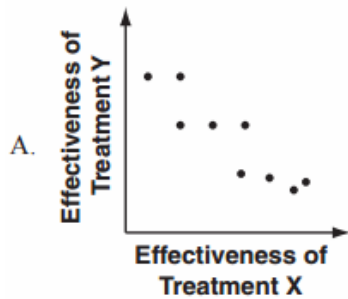
C.  $y = \frac{x}{10}$

D.  $y = \frac{10}{x}$

## Question 6.

While studying medical treatments, scientists noticed a relationship between two of the treatments when applied together. As Treatment X became more effective, Treatment Y became less effective.

Which scatter plot best demonstrates this relationship?



## Question 7.

Look at this equation.

$$3(x + 6) - 5(x - 2) = 10$$

What value of  $x$  makes the equation true?

## Question 8.

Glen made this table to represent a linear function.

$x$	$y = f(x)$
0	-2
1	0
2	2
3	4

- a. What is the  $y$ -intercept of Glen's function?

Stacy wrote this equation to represent a different linear function.

$$g(x) = 3x + 12$$

- b. What is the  $x$ -intercept of Stacy's function? Show your work or explain how you know.

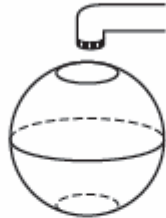
Glen and Stacy will each graph their linear functions on the same coordinate plane.

- c. Who will graph the steeper line, Glen or Stacy? Show your work or explain how you know.

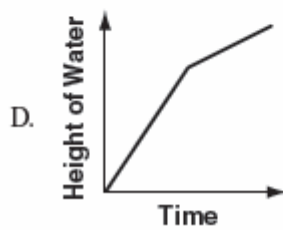
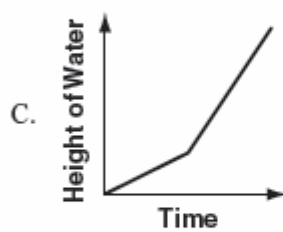
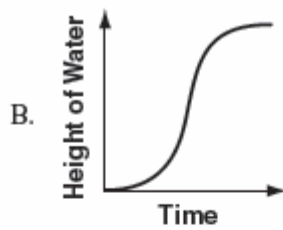
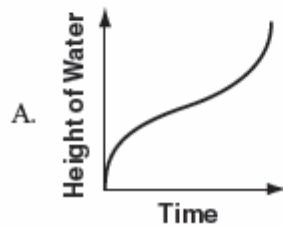
## Question 9.



9 Look at this container.



Water flows into this container at a constant rate. Which graph could represent the height of the water in the container over time?



## Question 10.



- 13 Look at this inequality.

$$|x + 5| \leq 2$$

List all **integer** values of  $x$  that make the inequality true.

## Bonus Question

### Question 11

On Friday, Earl drove his truck 232 miles.

- His truck gets 16 miles per gallon in the city.
- His truck gets 20 miles per gallon on the highway.

On Friday, the truck used a total of 12 gallons of gas. The truck used  $c$  gallons of gas in the city and  $h$  gallons of gas on the highway. How many gallons of gas did Earl's truck use Friday when traveling on the highway? Show your work or explain how you know.