Algebra Quick Quiz 02262020

Question 1

The function f is defined by $f(x) = x^2 - 2x - 24$.

35. Part A

If $f(x + 3) = x^2 + kx - 21$, what is the value of k?

Part B

What are the zero(s) of $f(x + 3)$?

Select **all** that apply.

Ⓐ $x = -7$

Ⓑ $x = -4$

Ⓒ $x = -2$

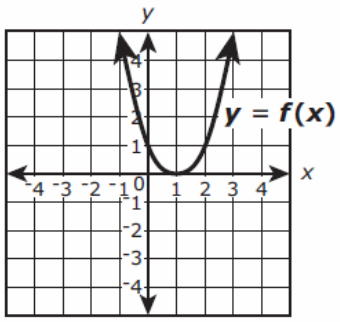
Ⓓ $x = 0$

Ⓔ $x = 3$

Ⓕ $x = 6$

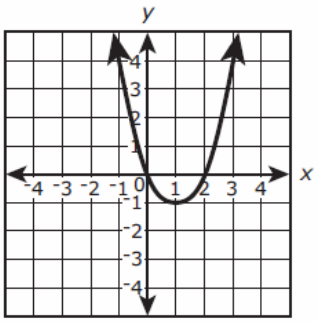
Question 2

Consider the function $f(x)$, shown in the xy-coordinate plane, as the parent function.



29. Part A

The graph of a transformation of the function $f(x)$ is shown.



Which expression defines the transformation shown?

Ⓐ $f(x + 0) - 1$

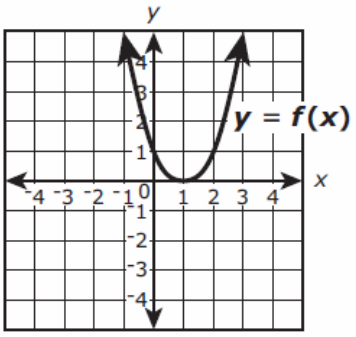
Ⓑ $f(x + 0) + 1$

Ⓒ $f(x - 1) + 0$

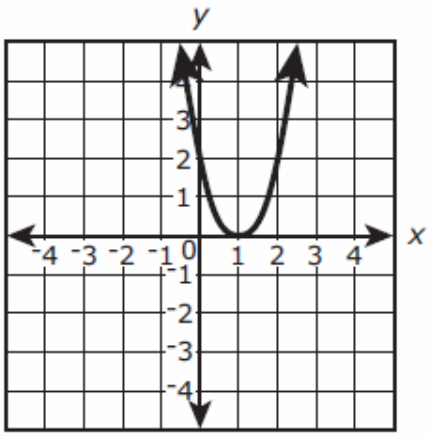
Ⓓ $f(x + 1) + 0$

Question 3.

Consider the function $f(x)$, shown in the xy-coordinate plane, as the parent function.



The graph of a transformation of the function $f(x)$ is shown.



Which expression defines the transformation shown?

Ⓐ $\frac{1}{2}f(x + 0) + 0$

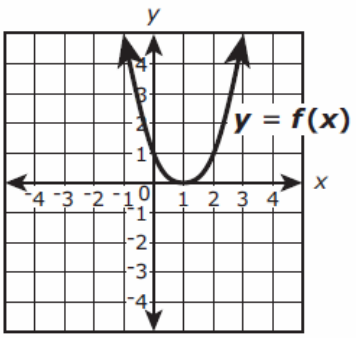
Ⓑ $2f(x + 0) + 0$

Ⓒ $\frac{1}{2}f(x - 1) - 1$

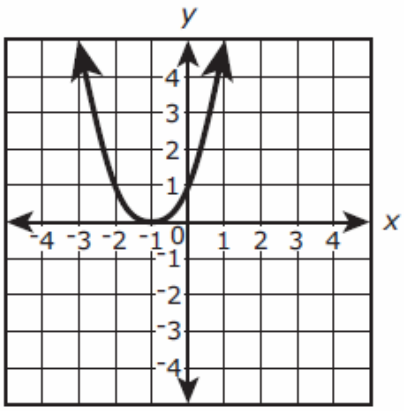
Ⓓ $2f(x + 1) - 0$

Question 4.

Consider the function $f(x)$, shown in the xy-coordinate plane, as the parent function.



The graph of a transformation of the function $f(x)$ is shown.



Which expression defines the transformation shown?

Ⓐ $f(x) - 2$

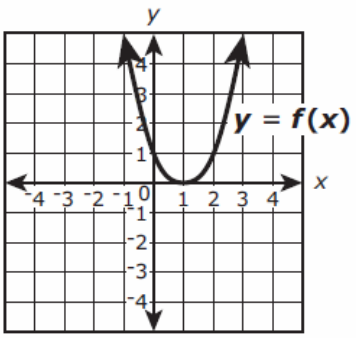
Ⓑ $f(x - 2) + 0$

Ⓒ $f(x) + 2$

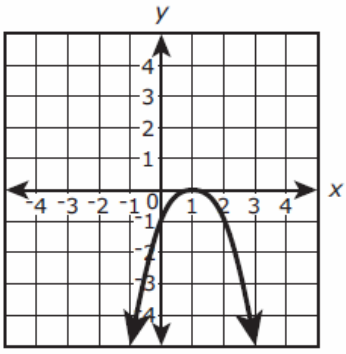
Ⓓ $f(x + 2) + 0$

Question 5.

Consider the function $f(x)$, shown in the xy-coordinate plane, as the parent function.



The graph of a transformation of the function $f(x)$ is shown.



The transformation shown can be expressed in the form $y = p[f(x + r)] + n$, where p, r, and n are constants. Which value must be less than 0?

Ⓐ p

Ⓑ r

Ⓒ x

Ⓓ n

Question 6.

Which system has no solution?

a. $\begin{cases} y = x + 4 \\ y - x = -4 \end{cases}$

b. $\begin{cases} 2y = 2x + 8 \\ -2x = 2y - 8 \end{cases}$

c. $\begin{cases} y = \frac{1}{2}x + 6 \\ 2x + 5 = y \end{cases}$

d. $\begin{cases} y = 4x + 1 \\ y - 1 = 4x \end{cases}$

Question 7.

Given $f(x) = x^2 + 1$ with domain D: $\{-2, -1, 0, 1, 3\}$. What is the range, R?

a. R: $\{-1, -2, 0, 1, 3\}$

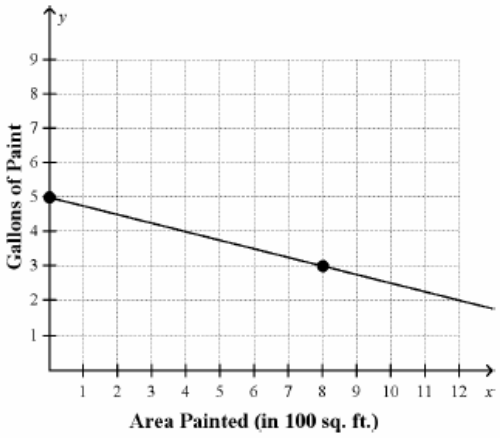
b. R: $\{4, 1, 0, 1, 9\}$

c. R: $\{5, 2, 1, 2, 10\}$

d. R: $\{3, 0, -1, 0, 8\}$

Question 8.

Janell has 5 gallons of paint. After painting 800 square feet of walls in her house, she has 3 gallons left. The graph below show's Janell's situation.



What is the equation of this linear function? What is the slope and what does it represent?

a. $y = -\frac{1}{400}x + 5$; slope = $-\frac{1}{400}$; this means that for every gallon of paint used, 400 sq. ft. of area is painted.

b. $y = -\frac{1}{40}x + 5$; slope = $-\frac{1}{40}$; this means that for every gallon of paint used, 40 sq. ft. of area is painted.

c. $y = -\frac{1}{800}x + 5$; slope = $-\frac{1}{800}$; this means that for every gallon of paint used, 800 sq. ft. of area is painted.

d. $y = -\frac{1}{4}x + 5$; slope = $-\frac{1}{400}$; this means that for every gallon of paint used, 4 sq. ft. of area is painted.

Question 9.

Which expression is NOT equivalent to the other expressions?

a. $(4x^2y)^2$

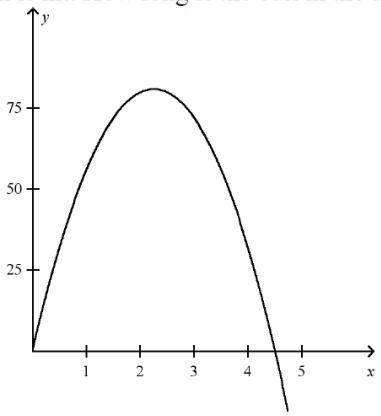
b. $4x^4y^2$

c. $16x^4y^2$

d. $4^2x^4y^2$

Question 10.

The height of a ball in feet is modeled by $y = -16x^2 + 72x$, where x is the time in seconds after the ball is hit. How long is the ball in the air?



a. 2.25 s

b. 4.5 s

c. 9 s

d. 81 s

Bonus Question

Question 11

A high school is having a talent contest and will give different prizes for the best 5 acts in the show. First place wins the most money, and each place after that wins $50 less than the previous place.

22. Part A

Create a model that can be used to determine the total amount of prize money based on the value of the first place prize.

Enter your model in the space provided.

Part B

The talent contest has a total of $1,000 in prize money. What is the amount of money for **each** of the five prizes? Show your work.

Enter your answers and your work in the space provided.