Algebra Quick Quiz 03102020

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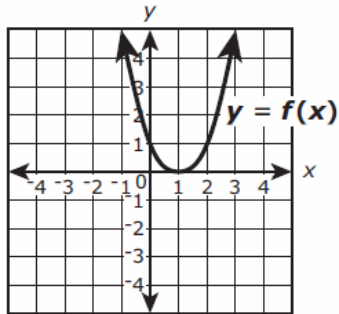
What are the zero(s) of $f(x + 3)$?

Select **all** that apply.

(A) $x = -7$

(B) $x = -4$

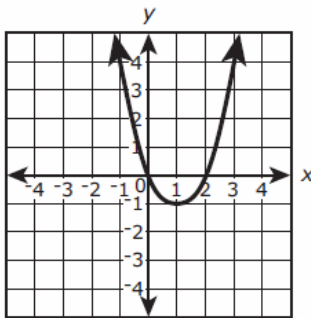(C) $x = -2$

(D) $x = 0$

(E) $x = 3$

(F) $x = 6$

Question 2

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

29. Part A

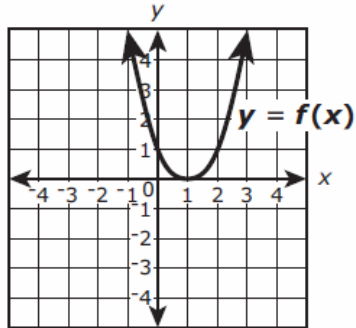The graph of a transformation of the function $f(x)$ is shown.

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?

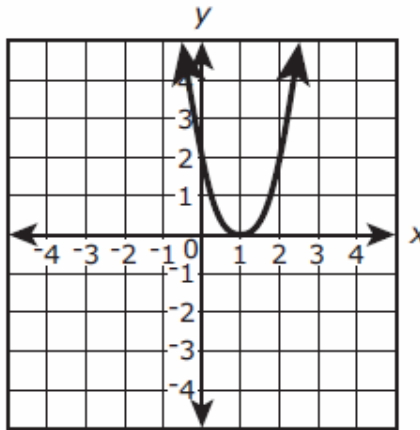Ⓐ $\frac{1}{2}f(x + 0) + 0$

Ⓑ $2f(x + 0) + 0$

Ⓒ $\frac{1}{2}f(x - 1) - 1$

Ⓓ $2f(x + 1) - 0$

Question 4.

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

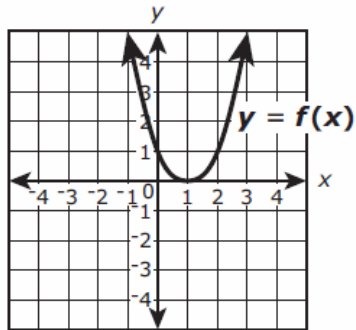The graph of a transformation of the function $f(x)$ is shown.
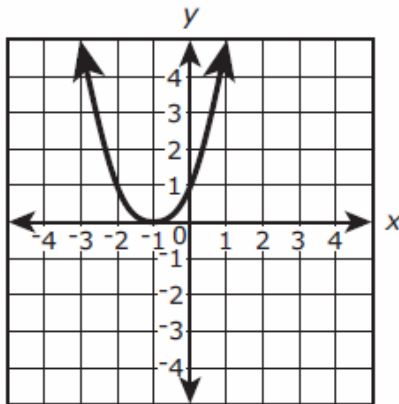

Which expression defines the transformation shown?

Ⓐ $f(x) - 2$

Ⓑ $f(x - 2) + 0$

Ⓒ $f(x) + 2$

Ⓓ $f(x + 2) + 0$

Question 5.

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

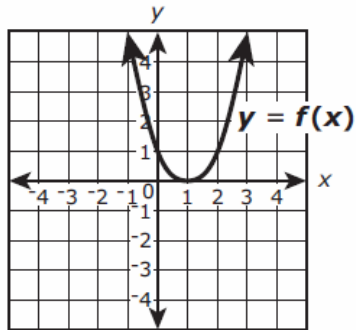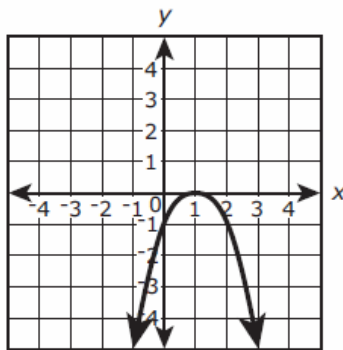The graph of a transformation of the function $f(x)$ is shown.

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

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

Question 7.

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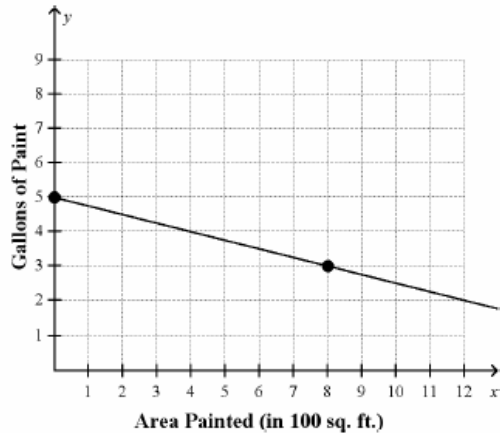
a. R: $\left\{-1,-2,0,1,3\right\}$

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

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

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

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.

Area Painted (in 100 sq. ft.)

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

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

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

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

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

Question 9.

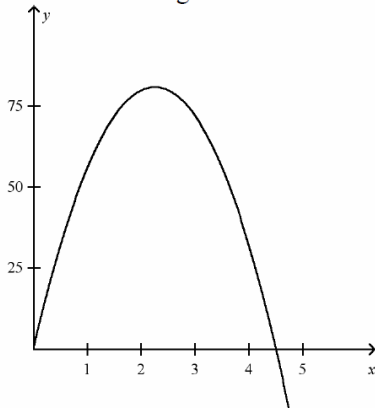Which expression is NOT equivalent to the other expressions?

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.