Algebra 1 Quick-Quiz-04172024

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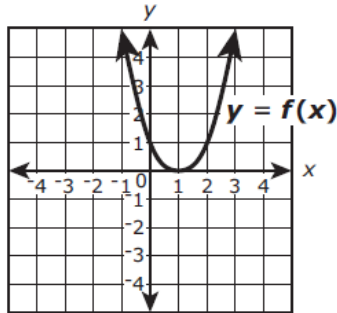
What are the zero(s) of $f(x + 3)$?

Select **all** that apply.

Ⓐ $x = -7$

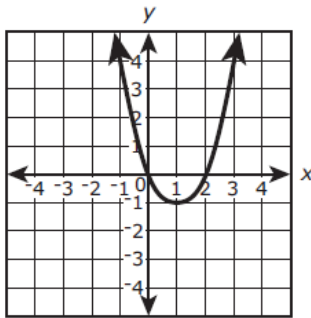Ⓑ $x = -4$

Ⓒ $x = -2$

Ⓓ $x = 0$

Ⓔ $x = 3$

Ⓕ $x = 6$

Question 2

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

$y = f(x)$

29. Part A

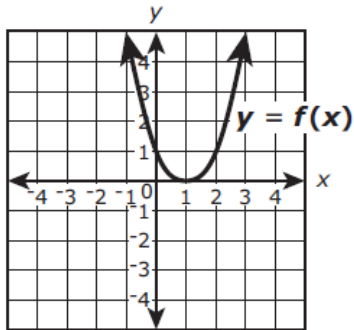The graph of a transformation of the function $f(x)$ is shown.
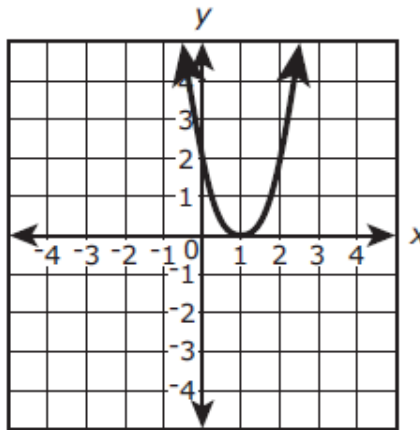
Which expression defines the transformation shown?

Ⓐ $f(x + 0) - 1$

Ⓑ $f(x + 0) + 1$

Ⓒ $f(x - 1) + 0$

Ⓓ $f(x + 1) + 0$

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.

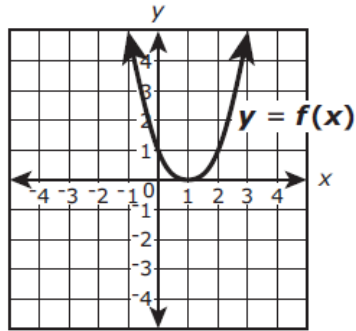The graph of a transformation of the function $f(x)$ is shown.

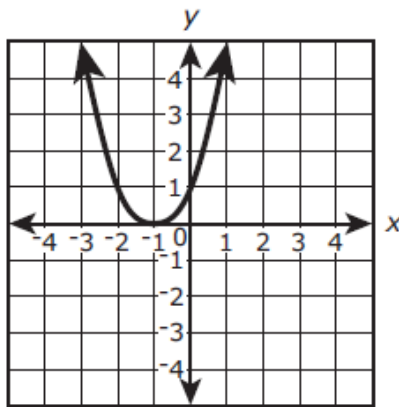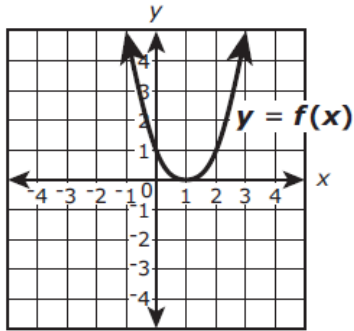
Which expression defines the transformation shown?

ⓐ $f(x) - 2$

ⓑ $f(x - 2) + 0$

ⓒ $f(x) + 2$

ⓓ $f(x + 2) + 0$

Question 5.

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

$y = f(x)$

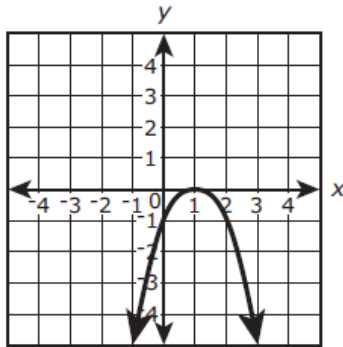The graph of a transformation of the function $f(x)$ is shown.

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: $\{-2, -1, 0, 1, 3\}$. What is the range, R?
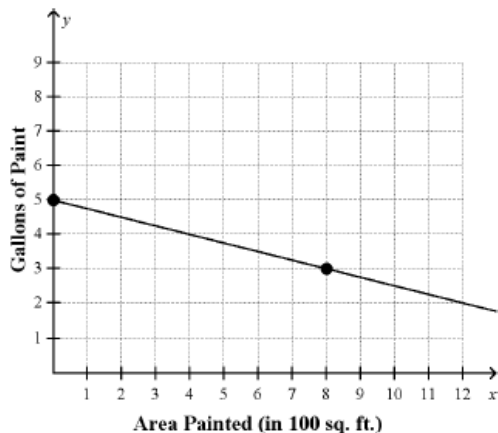
a. R: $\{-1, -2, 0, 1, 3\}$

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.

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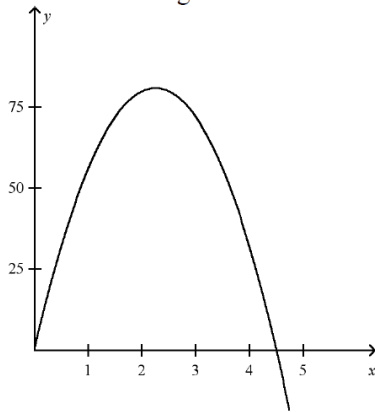
a. $(4x^2y)^2$

c. $16x^4y^2$

b. $4x^4y^2$

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

c. 9 s

b. 4.5 s

d. 81 s

Bonus Question

Question 11a.

A formula for determining the finite sum, S, of an arithmetic sequence of numbers is $S = \frac{n}{2}(a + b)$, where n is the number of terms, a is the first term, and b is the last term. Express b in terms of a, S, and n.

Question 11b.

The length of a rectangular sign is 6 inches more than half its width. The area of this sign is 432 square inches. Write an equation in one variable that could be used to find the number of inches in the dimensions of this sign.

Solve this equation algebraically to determine the dimensions of this sign, in inches.