Algebra Quick Quiz 02032022

Question 1.

Which of the following is equivalent to this expression?

$$-5x(-6x^2 + 1)$$

Ⓐ $30x^3 - 4x$

Ⓑ $30x^3 - 5x$

Ⓒ $-11x^3 - 4x$

Ⓓ $-11x^3 - 5x$

Question 2

Consider this function.

$$f(x) = x(18 - x)$$

What are the values of $f(0)$, $f(5)$, and $f(18)$?

Ⓐ $f(0) = -18$
$f(5) = 90$
$f(18) = -36$

Ⓑ $f(0) = 0$
$f(5) = 90$
$f(18) = -324$

Ⓒ $f(0) = 0$
$f(5) = 65$
$f(18) = 0$

Ⓓ $f(0) = 18$
$f(5) = -450$
$f(18) = -36$

Question 3.

A ball is thrown into the air from the top of a building. The height, $h(t)$, of the ball above the ground t seconds after it is thrown can be modeled by $h(t) = -16t^2 + 64t + 80$. How many seconds after being thrown will the ball hit the ground?

(1) 5

(2) 2

(3) 80

(4) 144

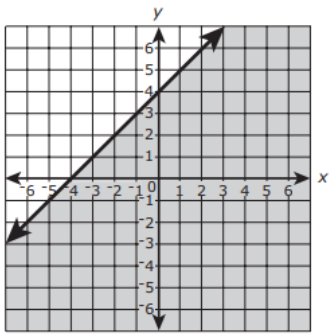
Question 4. You should be able to do this without a graphing calculator.

Consider this inequality.

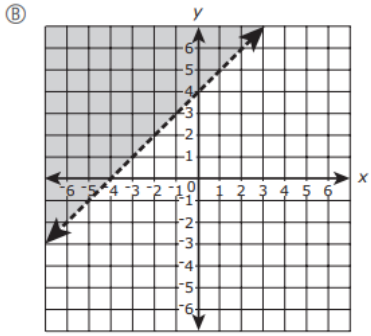
$$y \geq x - 4$$

Which of the following graphs represents the solution set of the inequality?

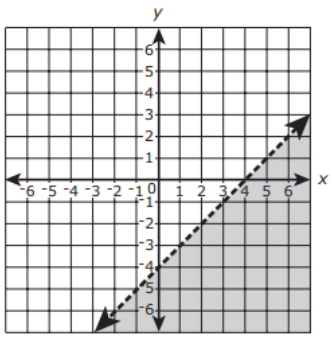
Ⓐ



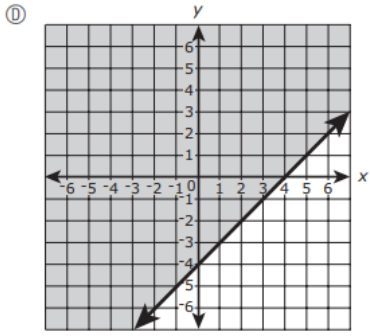
Ⓑ



Ⓒ



Ⓓ



Question 5.

Line w is represented by this equation.

$$y = 5x + 3$$

Which of the following equations represents a line that is perpendicular to line w?

Ⓐ $y = -\frac{1}{5}x + 1$

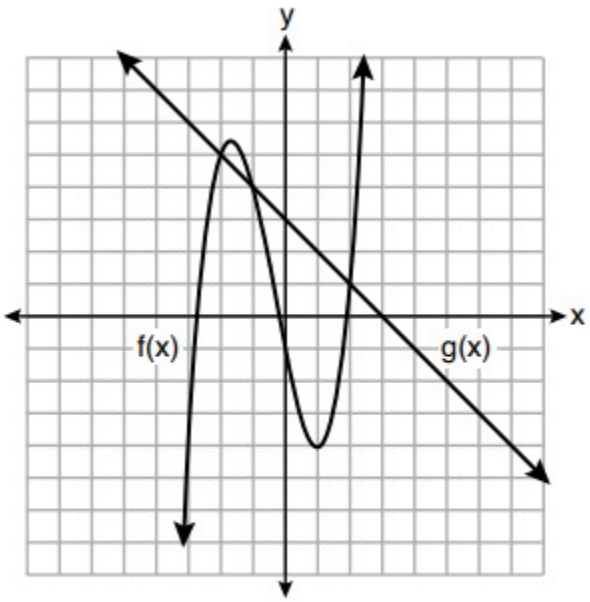
Ⓑ $y = -5x + 1$

Ⓒ $y = \frac{1}{5}x + 1$

Ⓓ $y = 5x + 1$

Question 6.

The functions $f(x)$ and $g(x)$ are graphed on the set of axes below.



For which value of x is $f(x) \neq g(x)$?

(1) -1

(2) 2

(3) 3

(4) -2

Question 7.

The quadratic functions $r(x)$ and $q(x)$ are given below.

x	r(x)
−4	−12
−3	−15
−2	−16
−1	−15
0	−12
1	7

$q(x) = x^2 + 2x - 8$

The function with the *smallest* minimum value is

(1) $q(x)$, and the value is -9

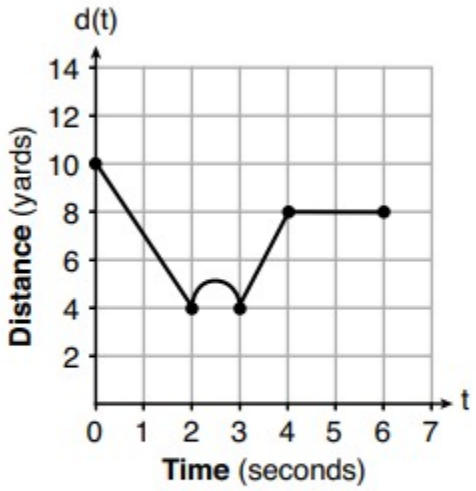
(2) $q(x)$, and the value is -1

(3) $r(x)$, and the value is -16

(4) $r(x)$, and the value is -2

Question 8.

A child is playing outside. The graph below shows the child's distance, $d(t)$, in yards from home over a period of time, t, in seconds.



Which interval represents the child constantly moving closer to home?

(1) $0 \leq t \leq 2$

(2) $2 \leq t \leq 3$

(3) $3 \leq t \leq 4$

(4) $4 \leq t \leq 6$

Question 9.

A dolphin jumps out of the water and then back into the water. His jump could be graphed on a set of axes where x represents time and y represents distance above or below sea level. The domain for this graph is best represented using a set of

(1) integers

(2) positive integers

(3) real numbers

(4) positive real numbers

Question 10.

Which of the following is the solution set of this inequality?

$$2 - 4y > 14$$

Ⓐ $y > -3$

Ⓑ $y < -3$

Ⓒ $y > 3$

Ⓓ $y < 3$

Bonus
Question 11

This table shows the values of the linear function $f(x)$ for different values of x.

x	$f(x)$
0	120
20	90
40	60
60	30

The function $g(x)$ is represented by this equation.

$$g(x) = 10x + 40$$

Which statement correctly compares the rates of change and y-intercepts of $f(x)$ and $g(x)$?

Ⓐ Function $f(x)$ has a greater rate of change and a greater y-intercept than function $g(x)$.

Ⓑ Function $g(x)$ has a greater rate of change and a greater y-intercept than function $f(x)$.

Ⓒ Function $f(x)$ has a greater rate of change than function $g(x)$, and function $g(x)$ has a greater y-intercept than function $f(x)$.

Ⓓ Function $g(x)$ has a greater rate of change than function $f(x)$, and function $f(x)$ has a greater y-intercept than function $g(x)$.