Algebra Quick Quiz 02142022

Question 1.

The length of a rectangular patio is 7 feet more than its width, w. The area of a patio, $A(w)$, can be represented by the function

(1) $A(w) = w + 7$

(2) $A(w) = w^2 + 7w$

(3) $A(w) = 4w + 14$

(4) $A(w) = 4w^2 + 28w$

Question 2

If $A = 3x^2 + 5x - 6$ and $B = -2x^2 - 6x + 7$, then $A - B$ equals

(1) $-5x^2 - 11x + 13$

(2) $5x^2 + 11x - 13$

(3) $-5x^2 - x + 1$

(4) $5x^2 - x + 1$

Question 3.

Officials in a town use a function, C, to analyze traffic patterns. $C(n)$ represents the rate of traffic through an intersection where n is the number of observed vehicles in a specified time interval. What would be the most appropriate domain for the function?

(1) $\{\ldots -2, -1, 0, 1, 2, 3, \ldots\}$

(2) $\{-2, -1, 0, 1, 2, 3\}$

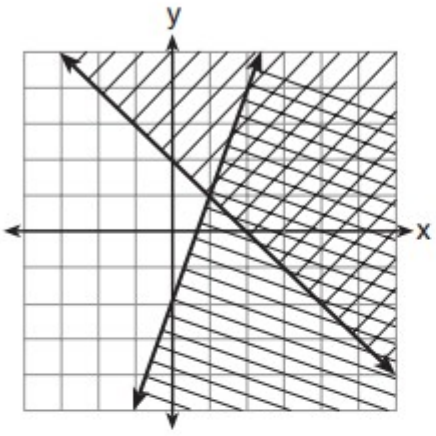
(3) $\left\{0, \frac{1}{2}, 1, 1\frac{1}{2}, 2, 2\frac{1}{2}\right\}$

(4) $\{0, 1, 2, 3, \ldots\}$

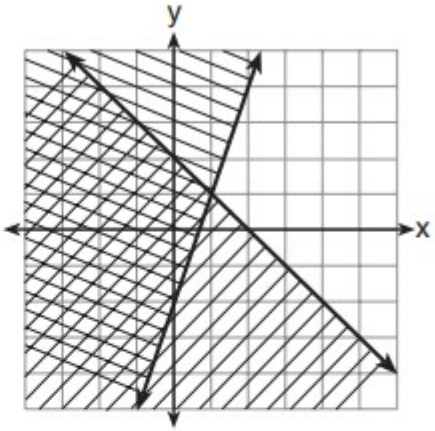
Question 4.

Given: $y + x > 2$
$y \leq 3x - 2$

Which graph shows the solution of the given set of inequalities?



(1)



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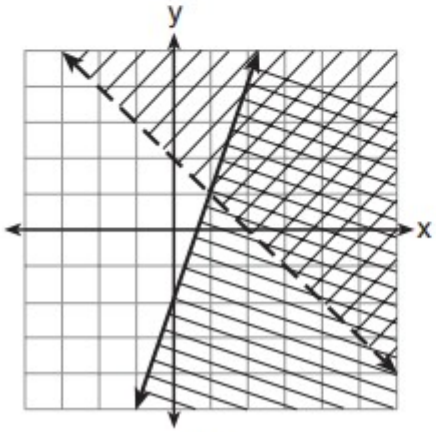

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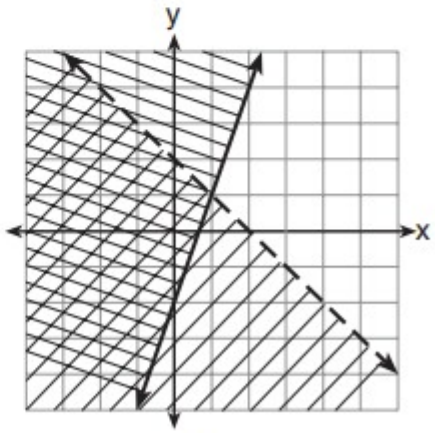
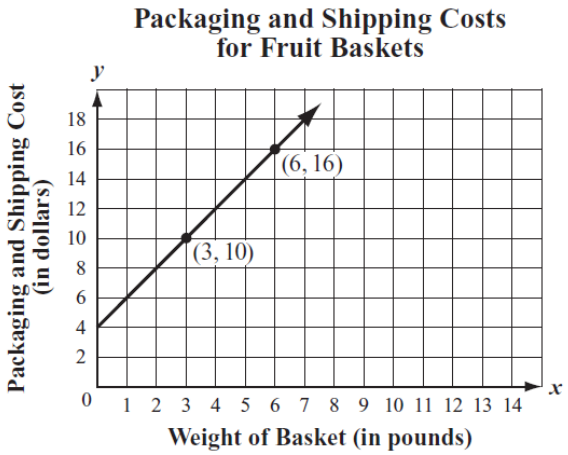


(4)

Question 5.

A company packages fruit baskets of different weights and ships them to customers. The company charges a flat fee for packaging the baskets. The total packaging and shipping cost in dollars, y, of a fruit basket weighing x pounds is represented by the line on the graph below.



a. What is the y-intercept of the line on the graph?

b. What does the y-intercept of the line represent in this situation?

Question 6.

Which value of x satisfies the equation $\frac{7}{3}\left(x + \frac{9}{28}\right) = 20$?

(1) 8.25
(2) 8.89
(3) 19.25
(4) 44.92

Question 7.

For all non-zero values of x, which of the following expressions has a value of 1?

A. $\frac{4}{x} \cdot \left(\frac{-4}{x}\right)$

B. $\frac{4}{x} \cdot \left(\frac{1}{4x}\right)$

C. $\frac{4}{x} \cdot \left(\frac{-x}{4}\right)$

D. $\frac{4}{x} \cdot \left(\frac{x}{4}\right)$

Question 8.

The table below shows the average yearly balance in a savings account where interest is compounded annually. No money is deposited or withdrawn after the initial amount is deposited.

Year	Balance, in Dollars
0	380.00
10	562.49
20	832.63
30	1232.49
40	1824.39
50	2700.54

Which type of function best models the given data?

(1) linear function with a negative rate of change

(2) linear function with a positive rate of change

(3) exponential decay function

(4) exponential growth function

Question 9.

Keith determines the zeros of the function $f(x)$ to be -6 and 5. What could be Keith's function?

(1) $f(x) = (x + 5)(x + 6)$

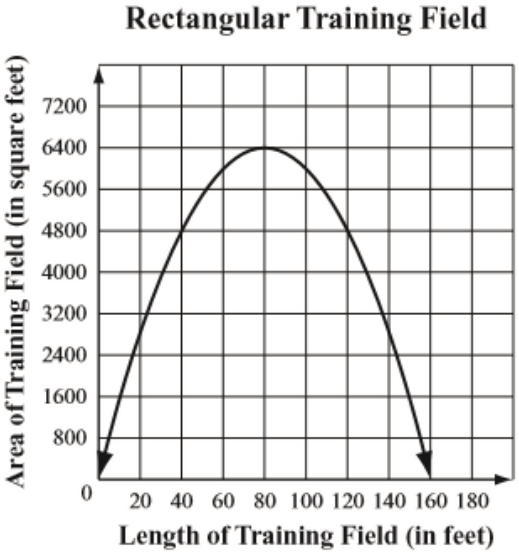
(2) $f(x) = (x + 5)(x - 6)$

(3) $f(x) = (x - 5)(x + 6)$

(4) $f(x) = (x - 5)(x - 6)$

Question 10.

40 A dog trainer will use 320 feet of fence to create a rectangular training field. The graph below displays the relationship between the length, in feet, of the training field and the area, in square feet, of the training field.



What is the length of the rectangular training field that has the greatest area?

A. 40 feet

B. 80 feet

C. 160 feet

D. 180 feet

Bonus

Question 11a.

John has four more nickels than dimes in his pocket, for a total of \$1.25. Which equation could be used to determine the number of dimes, x, in his pocket?

(1) $0.10(x + 4) + 0.05(x) = \$1.25$

(2) $0.05(x + 4) + 0.10(x) = \$1.25$

(3) $0.10(4x) + 0.05(x) = \$1.25$

(4) $0.05(4x) + 0.10(x) = \$1.25$

Question 11b.

Given: $L = \sqrt{2}$

$M = 3\sqrt{3}$

$N = \sqrt{16}$

$P = \sqrt{9}$

Which expression results in a rational number?

(1) $L + M$

(2) $M + N$

(3) $N + P$

(4) $P + L$