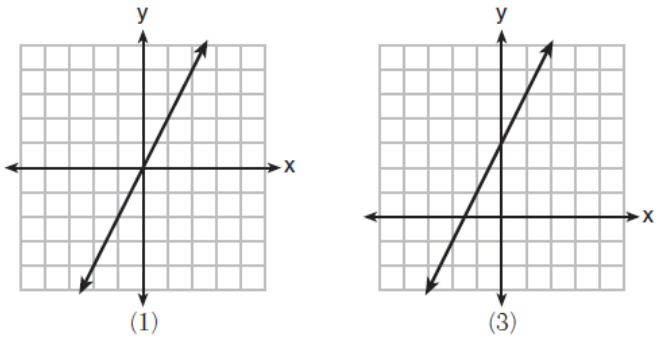
Algebra Quick-Quiz-03082022

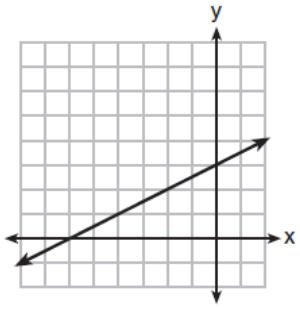
Question 1.

Which graph shows a line where each value of y is three more than half of x?

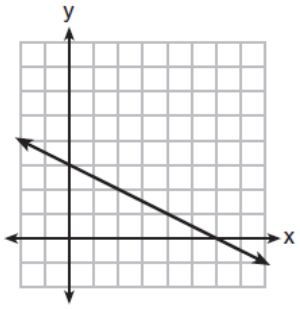


(1)

(3)



(2)



(4)

Question 2

Which expression is equivalent to $3^3 \cdot 3^4$?

(1) 9^{12}

(2) 9^7

(3) 3^{12}

(4) 3^7

Question 3.

Which expression is equivalent to $x^4 - 12x^2 + 36$?

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

(2) $(x^2 + 6)(x^2 + 6)$

(3) $(6 - x^2)(6 + x^2)$

(4) $(x^2 + 6)(x^2 - 6)$

Question 4.

If Ann correctly factors an expression that is the difference of two perfect squares, her factors could be

(1) $(2x + y)(x - 2y)$

(2) $(2x + 3y)(2x - 3y)$

(3) $(x - 4)(x - 4)$

(4) $(2y - 5)(y - 5)$

Question 5.

The zeros of the function $f(x) = (x + 2)^2 - 25$ are

(1) -2 and 5

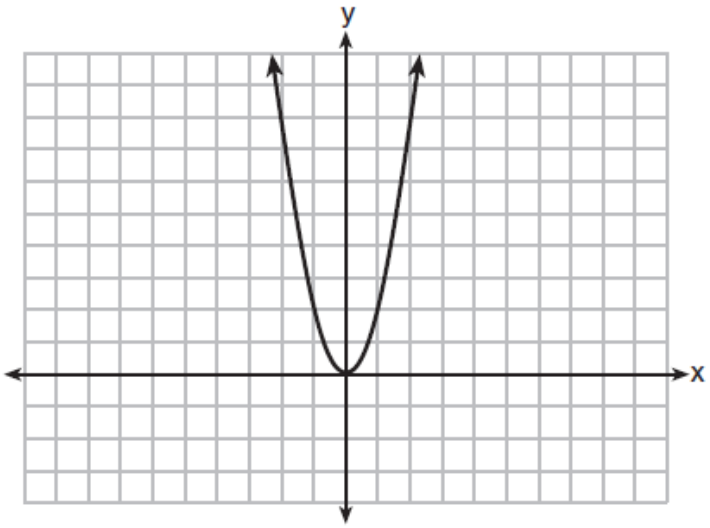
(2) -3 and 7

(3) -5 and 2

(4) -7 and 3

Question 6.

The graph of the equation $y = ax^2$ is shown below.



If a is multiplied by $-\frac{1}{2}$, the graph of the new equation is

(1) wider and opens downward
(2) wider and opens upward
(3) narrower and opens downward
(4) narrower and opens upward

Question 7.

During the 2010 season, football player McGee's earnings, m, were 0.005 million dollars more than those of his teammate Fitzpatrick's earnings, f. The two players earned a total of 3.95 million dollars. Which system of equations could be used to determine the amount each player earned, in millions of dollars?

(1) $m + f = 3.95$
$m + 0.005 = f$

(2) $m - 3.95 = f$
$f + 0.005 = m$

(3) $f - 3.95 = m$
$m + 0.005 = f$

(4) $m + f = 3.95$
$f + 0.005 = m$

Question 8.

What is the value of x in the equation $\frac{x-2}{3} + \frac{1}{6} = \frac{5}{6}$?

(1) 4

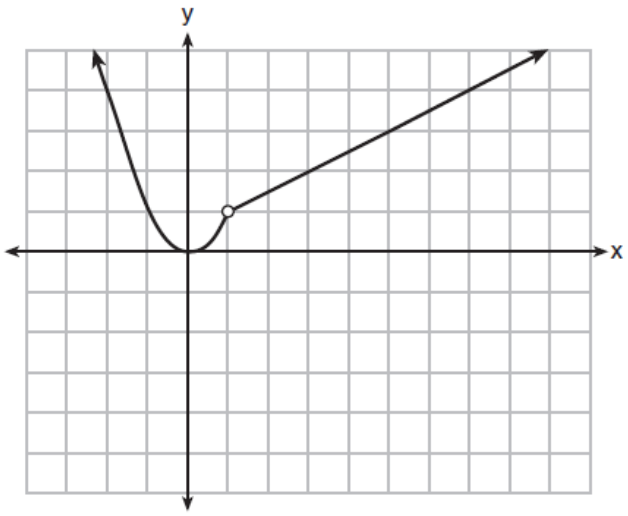
(2) 6

(3) 8

(4) 11

Question 9.

A function is graphed on the set of axes below.



Which function is related to the graph?

(1) $f(x) = \begin{cases} x^2, & x < 1 \\ x - 2, & x > 1 \end{cases}$

(2) $f(x) = \begin{cases} x^2, & x < 1 \\ \frac{1}{2}x + \frac{1}{2}, & x > 1 \end{cases}$

(3) $f(x) = \begin{cases} x^2, & x < 1 \\ 2x - 7, & x > 1 \end{cases}$

(4) $f(x) = \begin{cases} x^2, & x < 1 \\ \frac{3}{2}x - \frac{9}{2}, & x > 1 \end{cases}$

Question 10.

The function $h(t) = -16t^2 + 144$ represents the height, $h(t)$, in feet, of an object from the ground at t seconds after it is dropped. A realistic domain for this function is

(1) $-3 \leq t \leq 3$

(2) $0 \leq t \leq 3$

(3) $0 \leq h(t) \leq 144$

(4) all real numbers

Bonus Question

Question 11a.

Which ordered pair is in the solution set of the following system of linear inequalities?

$$y < 2x + 2$$
$$y \geq -x - 1$$

(1) (0,3)

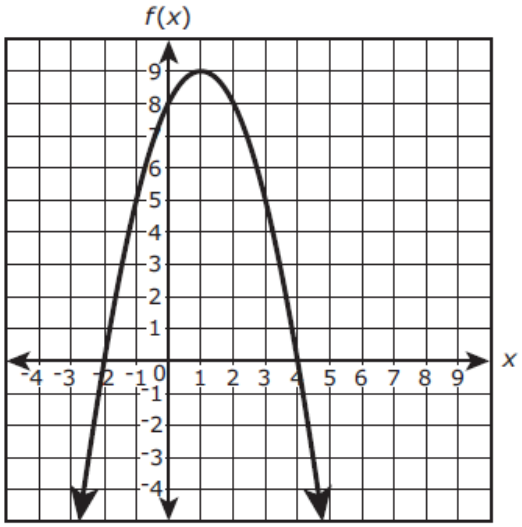
(2) (2,0)

(3) (–1,0)

(4) (–1,–4)

Question 11b.

The figure shows a graph of the function of $f(x)$ in the xy-coordinate plane, with the vertex at $(1, 9)$ and the zeros at -2 and 4.



The function g is defined by $g(x) = -3x + 2$.

Which statements are true? Select **all** that apply.

Ⓐ $f(-2)$ is greater than $g(-2)$.

Ⓑ $f(-1)$ is less than $g(-1)$.

Ⓒ $f(0)$ is greater than $g(0)$.

Ⓓ $f(1)$ is less than $g(1)$.

Ⓔ $f(2)$ is greater than $g(2)$.