Algebra Quick-Quiz-02242022

Question 1.

If $f(x) = 3^x$ and $g(x) = 2x + 5$, at which value of x is $f(x) < g(x)$?

(1) -1

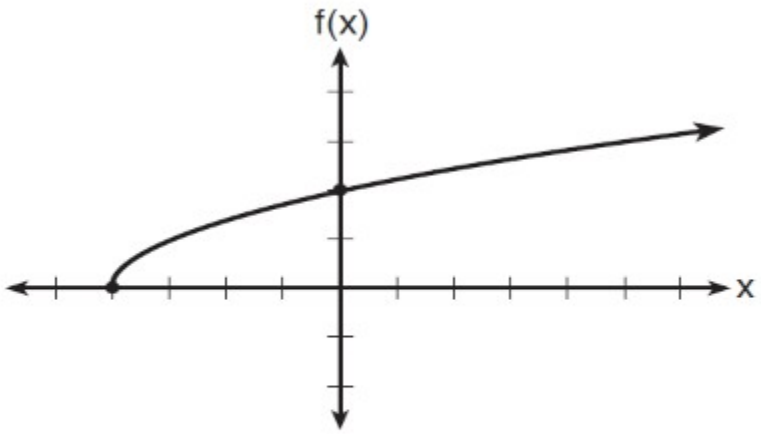
(2) 2

(3) -3

(4) 4

Question 2

The graph of the function $f(x) = \sqrt{x + 4}$ is shown below.



The domain of the function is

(1) $\{x|x > 0\}$

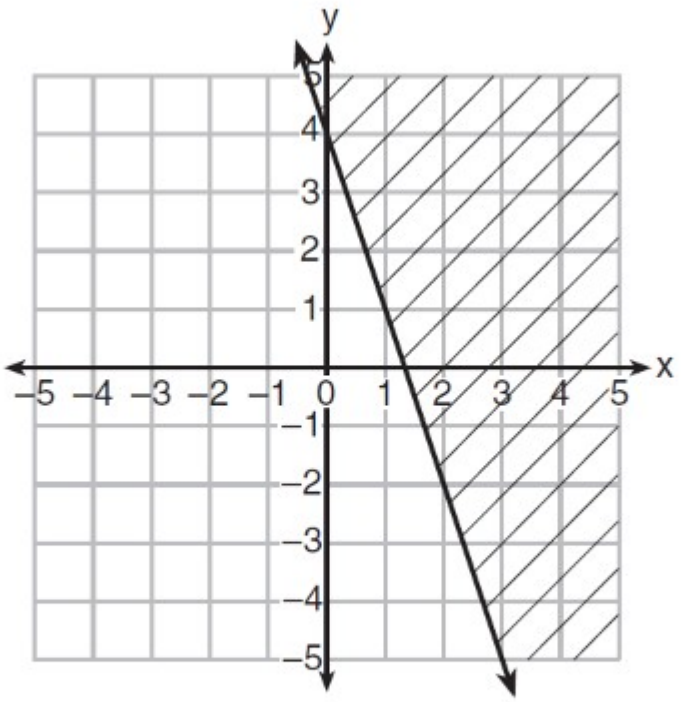
(2) $\{x|x \geq 0\}$

(3) $\{x|x > -4\}$

(4) $\{x|x \geq -4\}$

Question 3.

Which inequality is represented in the graph below?



(1) $y \geq -3x + 4$

(2) $y \leq -3x + 4$

(3) $y \geq -4x - 3$

(4) $y \leq -4x - 3$

Question 4.

The sum of two numbers is 47, and their difference is 15. What is the larger number?

(1) 16

(2) 31

(3) 32

(4) 36

Question 5.

At Genesee High School, the sophomore class has 60 more students than the freshman class. The junior class has 50 fewer students than twice the students in the freshman class. The senior class is three times as large as the freshman class. If there are a total of 1,424 students at Genesee High School, how many students are in the freshman class?

(1) 202
(2) 205
(3) 235
(4) 236

Question 6.

What are the vertex and axis of symmetry of the parabola $y = x^2 - 16x + 63$?

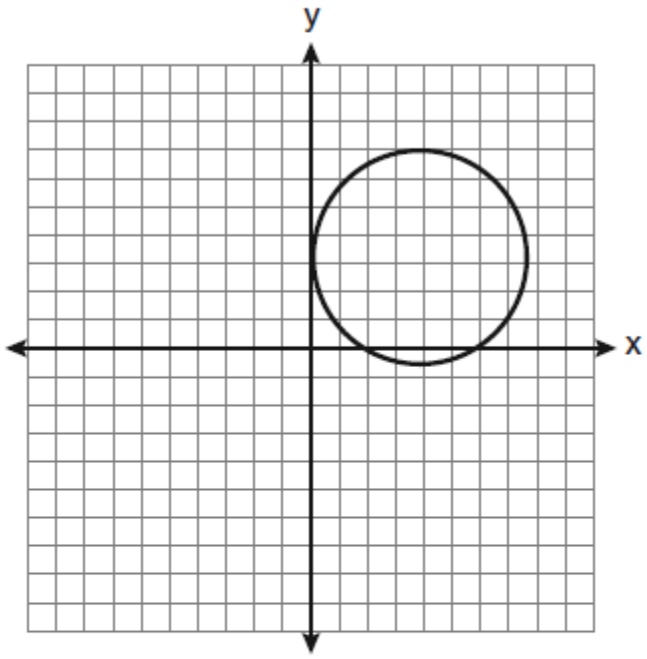
(1) vertex: (8,–1); axis of symmetry: $x = 8$
(2) vertex: (8,1); axis of symmetry: $x = 8$
(3) vertex: (–8,–1); axis of symmetry: $x = -8$
(4) vertex: (–8,1); axis of symmetry: $x = -8$

Question 7.

Determine the smallest integer that makes $-3x + 7 - 5x < 15$ true.

Question 8.

Which statement is true about the relation shown on the graph below?



(1) It is a function because there exists one x-coordinate for each y-coordinate.

(2) It is a function because there exists one y-coordinate for each x-coordinate.

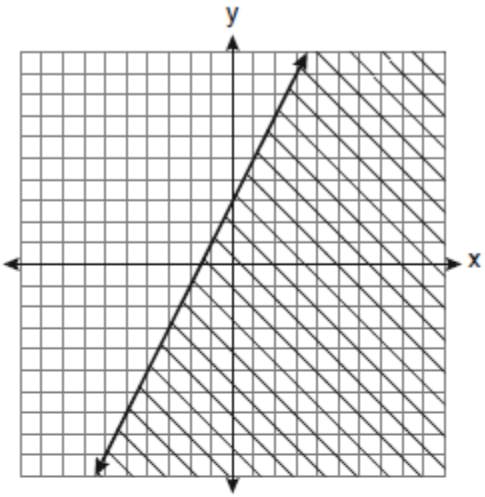
(3) It is *not* a function because there are multiple y-values for a given x-value.

(4) It is *not* a function because there are multiple x-values for a given y-value.

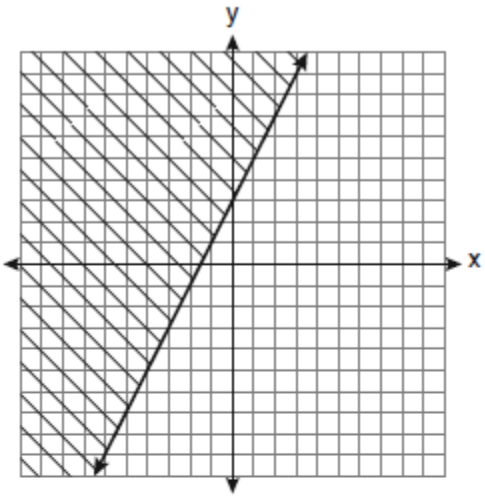
Question 9.

Try to do this question without graphing software.

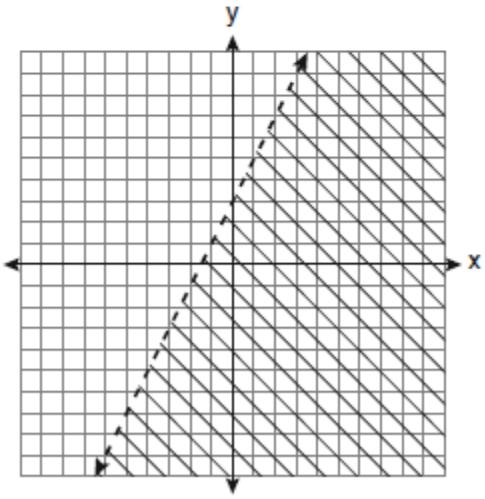
Which graph represents the solution of $3y - 9 \leq 6x$?



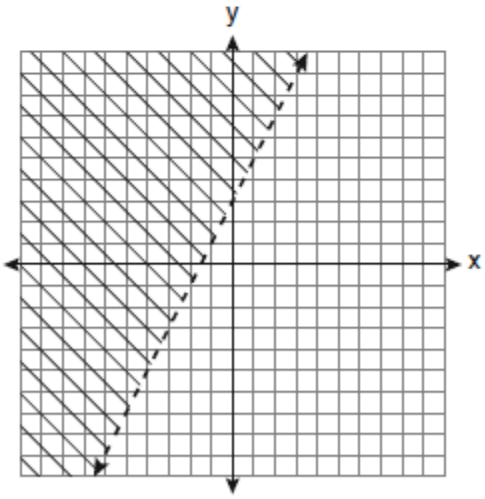
(1)



(3)



(2)



(4)

Question 10.

What is an equation of the line that passes through the point (4,–6) and has a slope of –3?

(1) $y = -3x + 6$

(2) $y = -3x - 6$

(3) $y = -3x + 10$

(4) $y = -3x + 14$

Bonus Question
Question 11a

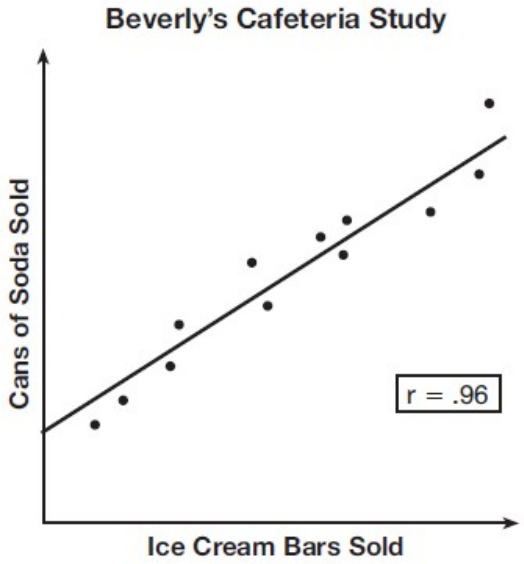
The equation to determine the weekly earnings of an employee at The Hamburger Shack is given by $w(x)$, where x is the number of hours worked.

$$w(x) = \begin{cases} 10x, & 0 \le x \le 40 \\ 15(x - 40) + 400, & x > 40 \end{cases}$$

Determine the difference in salary, *in dollars*, for an employee who works 52 hours versus one who works 38 hours.

Question 11b.

Beverly did a study this past spring using data she collected from a cafeteria. She recorded data weekly for ice cream sales and soda sales. Beverly found the line of best fit and the correlation coefficient, as shown in the diagram below.



Given this information, which statement(s) can correctly be concluded?

I. Eating more ice cream causes a person to become thirsty.
II. Drinking more soda causes a person to become hungry.
III. There is a strong correlation between ice cream sales and soda sales.

(1) I, only
(2) III, only
(3) I and III
(4) II and III