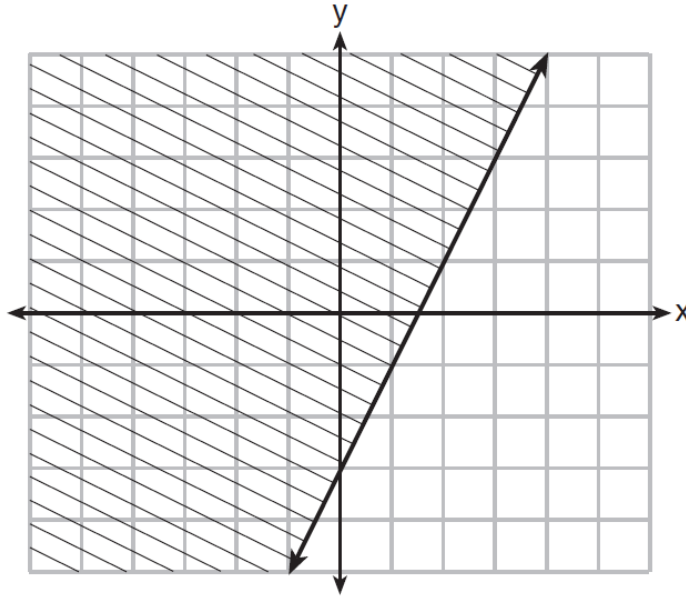


Question 1.

The graph of an inequality is shown below.



a) Write the inequality represented by the graph.

Question 2

$$(-2x^2 + 6x + 1) - 2(4x^2 - 3x + 1) =$$

- A  $6x^2 - 1$
- B  $-10x^2 - 1$
- C  $6x^2 + 12x - 1$
- D  $-10x^2 + 12x - 1$

Question 3.

Which domain is most appropriate for a function that represents the number of items,  $f(x)$ , placed into a laundry basket each day,  $x$ , for the month of January?

- (1) integers
- (2) whole numbers
- (3) rational numbers
- (4) irrational numbers

Question 4.

What is the solution to  $\frac{3}{2}b + 5 < 17$ ?

(1)  $b < 8$

(2)  $b > 8$

(3)  $b < 18$

(4)  $b > 18$

Question 5.

Which table of values represents an exponential relationship?

x	f(x)
1	6
2	9
3	12
4	15
5	18

(1)

x	k(x)
1	4
2	16
3	64
4	256
5	1024

(3)

x	h(x)
1	2
2	7
3	12
4	17
5	22

(2)

x	p(x)
1	-9.5
2	-12
3	-14.5
4	-17
5	-19.5

(4)

Question 6.

There are two numbers with the following properties.

- 1) The second number is 3 more than the first number.
- 2) The product of the two numbers is 9 more than their sum.

Which of the following represents possible values of these two numbers?

A -6, -3

B -4, -1

C -1, 4

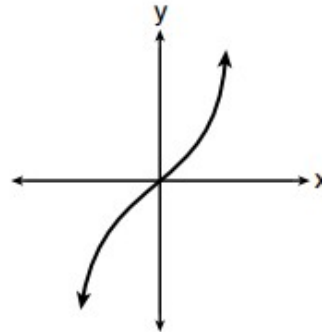
D -3, 6

Question 7.

Which relation is a function?

x	y
-1	1
0	0
1	1
1	2
2	4
3	9

(1)



(3)

$$y = \begin{cases} x, & -1 < x \leq 2 \\ x^2, & 2 \leq x < 4 \end{cases}$$

(2)

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

(4)

Question 8.

Which of the following *most* accurately describes the translation of the graph  $y = (x + 3)^2 - 2$  to the graph of  $y = (x - 2)^2 + 2$ ?

- A up 4 and 5 to the right
- B down 2 and 2 to the right
- C down 2 and 3 to the left
- D up 4 and 2 to the left

Question 9.

Which of the following sentences is true about the graphs of  $y = 3(x - 5)^2 + 1$  and  $y = 3(x + 5)^2 + 1$ ?

- A Their vertices are maximums.
- B The graphs have the same shape with different vertices.
- C The graphs have different shapes with different vertices.
- D One graph has a vertex that is a maximum, while the other graph has a vertex that is a minimum.

Question 10.

What are the  $x$ -intercepts of the graph of  $y = 12x^2 - 5x - 2$ ?

- A 1 and  $-\frac{1}{6}$
- B  $-1$  and  $\frac{1}{6}$
- C  $\frac{2}{3}$  and  $-\frac{1}{4}$
- D  $-\frac{2}{3}$  and  $\frac{1}{4}$

## Bonus Question

### Question 11

A gardener is planting two types of trees:

Type  $A$  is three feet tall and grows at a rate of 15 inches per year.

Type  $B$  is four feet tall and grows at a rate of 10 inches per year.

Algebraically determine exactly how many years it will take for these trees to be the same height.