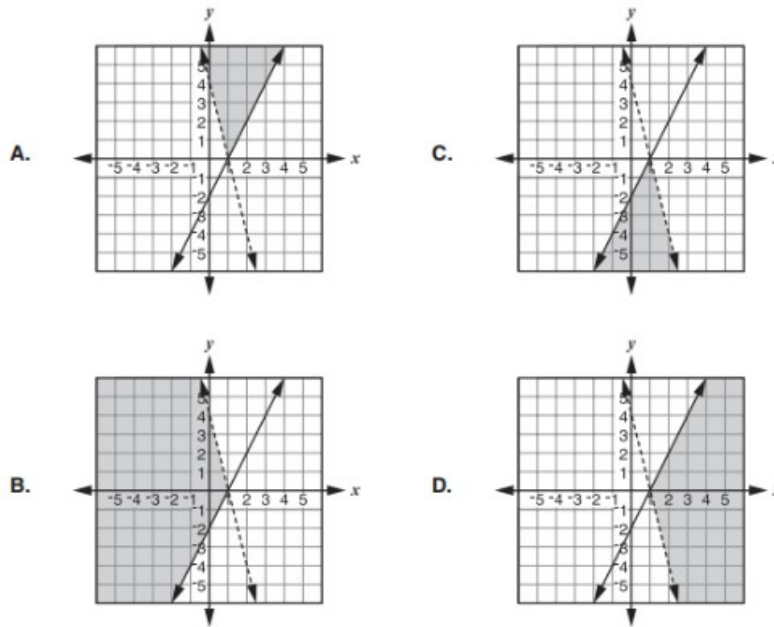


Algebra 1 Quick-Quiz-02032025

Question 1.

Select the graph that shows the solutions to the system of linear inequalities.

$$y \leq 2x - 2$$
$$y > -4x + 4$$



Question 2

Caroline knows the height and the required volume of a cone-shaped vase she's designing. Which formula can she use to determine the radius of the vase?

A.  $r = \sqrt{\frac{V}{3\pi h}}$

B.  $r = \sqrt{\frac{3V}{\pi h}}$

C.  $r = \frac{\sqrt{3V}}{\pi h}$

D.  $r = \pm \sqrt{\frac{3V}{\pi h}}$

Question 3.

Mr. Kelly buys a total of 40 boxes of pens and pencils for his class. Each box of pens costs \$5. Each box of pencils costs \$2. Mr. Kelly spends a total of \$131 on the pens and pencils.

Which equations form a system of equations that can be used to determine the number of boxes of pens,  $x$ , and the number of boxes of pencils,  $y$ , that Mr. Kelly buys? Select **two** correct answers.

- A.  $x + y = 40$
- B.  $x + y = 131$
- C.  $5x + 2y = 40$
- D.  $2x + 5y = 40$
- E.  $5x + 2y = 131$
- F.  $2x + 5y = 131$

Question 4.

Which product of factors is equivalent to  $(x + 1)^2 - y^2$ ?

- A.  $(x + 1 + y)^2$
- B.  $(x + 1 - y)^2$
- C.  $(x - 1 + y)(x - 1 - y)$
- D.  $(x + 1 + y)(x + 1 - y)$

Question 5.

What is the  $y$ -coordinate in the solution for the system of linear equations below?

$$-3x + 2y = 6$$

$$4x - y = 2$$

- A.  $-6$
- B.  $1$
- C.  $2$

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.

Jenny is solving the equation  $x^2 - 8x = 9$  by completing the square. What number should be added to both sides of the equation to complete the square?

- A  $2$
- B  $4$
- C  $8$
- D  $16$

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.

You MUST show your work to be given credit for this Bonus question.