Systems of Two Linear Equations & Inequalities (1A9.0)

Name _____

Class _____ Date _____

Score _____

Find the solution for the following system of equations by using *substitution*

$$-x + y = 1 \qquad 2x + y = -2$$

1 **Isolate** one of the variables

$-x + y = 1$
$2x + y = -2$

isolate the y

$-x + y = 1$
$+x \quad +x$
$y = x + 1$

2 **Substitute** equation for the isolated variable into the second equation in the system

substitute

$2x + y = -2$ → $2x + (x+1) = -2$

substitute

3 **Solve** for the remaining variable

$2x + (x+1) = -2$ → (combine like terms) → $3x + 1 = -2$ → (isolate the variable) → $3x + 1 = -2$
$-1 \quad -1$
$3x = -3$ → (isolate the variable) → $\frac{3x}{3} = \frac{-3}{3}$
$x = -1$

4 **Substitute** the **calculated** value for **x** into the equation with the **isolated y** to find its value

$y = x + 1$ → $y = -1 + 1$ → (add) → $y = 0$

substitute

5 **Check your work** by plugging-in the ordered pair into **both** equations in the system.

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1) $-2x + 5y = -3$ $\qquad$ $3x - 5y = 7$

What is the solution to the system of equations shown above?

A. (2, 2)
B. (2,1)
C. (3,2)
D. (4,1)

2) $9x - 2y = -15$ $\qquad$ $-7x + y = 10$

What is the solution to the system of equations shown above?

A. (-1, 3)
B. (-2, 5)
C. (2, -7)
D. (3, 10)

3) $3y - 6x = 3$ $\qquad$ $2y - x = -4$

What is the solution to the system of equations shown above?

A. $(1, -\frac{1}{2})$
B. (-2, -3)
C. (4, 5)
D. (-6, 1)

4) $4y - 2x = 16$ $\qquad$ $6y - 2x = 30$

What is the solution to the system of equations shown above?

A. (-6, 4)
B. (2, 10)
C. (6, 7)
D. (-2, 3)

5) $y + 3x = 2$ $y - 5x = 10$

What is the solution to the system of equations shown above?

A. (1, 3)
B. (-1, 5)
C. (2, -4)
D. (-5, 17)

6) $y = 2x$ $y = x - 1$

What is the solution to the system of equations shown above?

A. (-1, 2)
B. (1, 0)
C. (-1, -2)
D. (2, 1)

7) $y = x + 4$ $y = -3x$

What is the solution to the system of equations shown above?

A. (0, 4)
B. (-1, -3)
C. (3, -9)
D. (2, 6)

8) $2x + 2y \leq 12$ $x + 2y \leq 10$

Which of the following is a solution to the system of inequalities shown above?

A. (2, 5)
B. (2, 4)
C. (5, 5)
D. (4, 3)

9) $x + 6y \geq -4$ $3x + 5y \geq 1$

Which of the following is a solution to the system of inequalities shown above?

A. (2, -1)
B. (-2, -1)
C. (-3, 1)
D. (3, -5)

10) $2x + 4y \geq 10$ $2x + y \geq 7$

Which of the following is a solution to the system of inequalities shown above?

A. (1, -3)
B. (3, 0)
C. (3, 1)
D. (2, 2)

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11) **$-3y + x \leq 0$** **$5x + 3y \leq 36$**

Which of the following is a solution to the system of inequalities shown above?

A. (6, 2)
B. (10, 3)
C. (11, 4)
D. (9, -3)

12) **$x + 6y \leq 2$** **$3y + x \leq 5$**

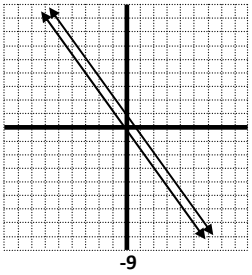
Which of the following is a solution to the system of inequalities shown above?

A. (8, 1)
B. $(5, \frac{1}{3})$
C. (0, 1)
D. (8, -1)

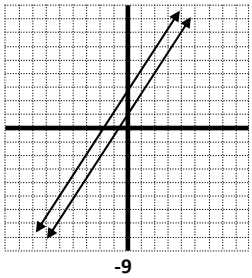
13) Which graph represents the system of equations shown below?

$y = -x + 1$ **$y = -x + 3$**

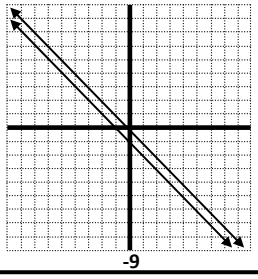
A.



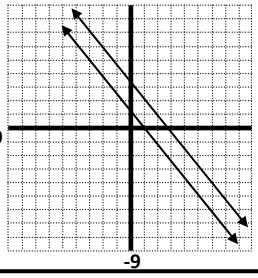
B.



C.



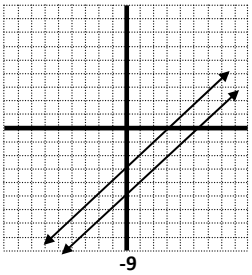
D.



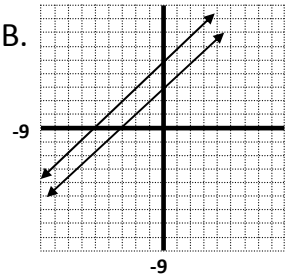
14) Which graph represents the system of equations shown below?

$y = x + 3$ **$y = x + 5$**

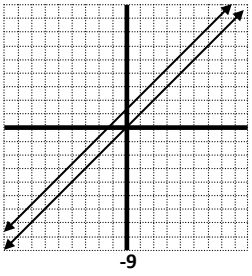
A.



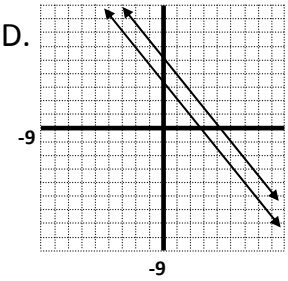
B.



C.

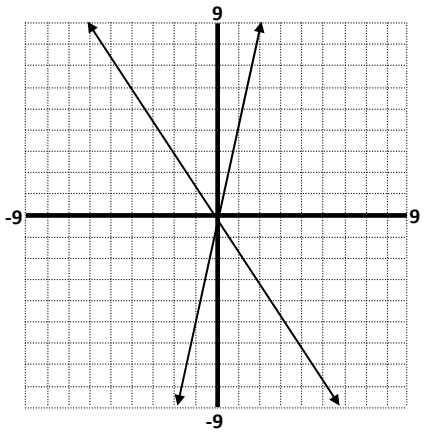


D.



15) Which answer choice represents where the system of inequalities graph shown below should be shaded?

y ≤ -2x y ≥ 5x



A. Shade region where y ≥ -2x and y < 5x (Quadrant II)

B. Shade region where y ≤ -2x and y ≥ 5x (Quadrant IV)

C. Shade regions where y ≤ 5x (Quadrants II and III)

D. Shade regions where y ≥ -2x (Quadrants I, II, and IV)