

ANSWERS

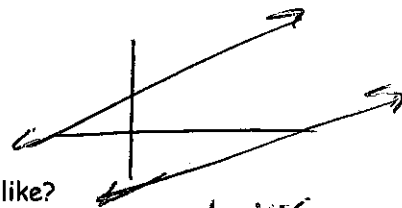
SHOW ALL WORK FOR FULL CREDIT!! Write answers as coordinate points. No graphing calculators!!

Multiple Choice (2 pts. each)

C

1. Which is not a method for solving a system of equations?

- a) graphing
- b) substitution
- c) Fundamental Theorem of Arithmetic
- d) linear combination



PARALLEL LINES WILL NEVER TOUCH

B

2. If a system of equations has no solution, what does the graph look like?

- a) intersecting lines
- b) parallel lines
- c) skew lines
- d) same line

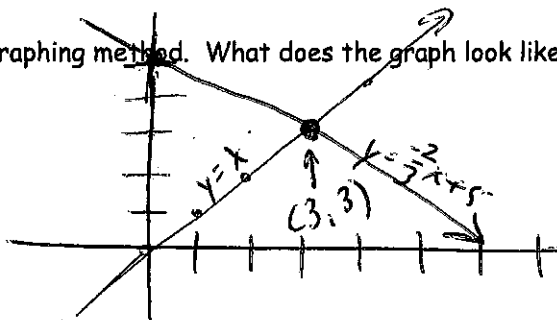
A

3. Solve the system of equations using the graphing method. What does the graph look like?

$$y = x$$

$$y = (-2/3)x + 5$$

- a) 2 lines intersecting at (3,3)
- b) 2 lines intersecting at (-3,-3)
- c) 2 lines intersecting at (2,2)
- d) 2 lines intersecting at (-2,-2)



4. Solve this system of equations:

$$x = 2y - 8$$

$$4x + y = 13$$

- a) (2,-5)
- b) (-2,5)
- c) (2,5)
- d) (-2,-5)

$$4(2y - 8) + y = 13$$

$$8y - 32 + y = 13$$

$$9y - 32 = 13$$

$$9y = 45$$

$$y = 5$$

$$x = 2(5) - 8$$

$$= 2$$

5. What is the correct first step to solve this system of equations?

$$4x - 3y = -10$$

$$2x + 3y = 4$$

- a) add the 2 equations together
- b) subtract the 2 equations
- c) multiply the second equation by 3
- d) divide the first equation by 4

$$4x - 3y = -10$$

$$2x + 3y = 4$$

$$6x = -6$$

just add them together because you have what you want
"-3y"
"+3y"

6. Select the coordinate point that is a solution to this system of equations.

$$2x + y = 7$$

$$3x - 4y = 5$$

- a) (-1,9)
- b) (-3,-1)
- c) (7,4)
- d) (3,1)

just plug in the point has to work for both equations

$$2(3) + (1) = 7$$

$$3(3) - 4(1) = 5$$

7. When using substitution to solve this system of equations, what is the result of the first step?

$$\begin{aligned} x &= 6y + 3 \\ x + 2y &= 5 \end{aligned}$$

← Everytime you see "x" you can plug in "6y+3"

So $x + 2y = 5$ becomes
 $(6y+3) + 2y = 5$

- a) $x+2(6x+3)=5$
 b) $x+2(6y+3)=5$
 c) $6y+3+2y=5$
 d) $6x+3+2y=5$

8. If linear combination is the method used to solve this system of equations, what is the result of the first step?

$$\begin{aligned} x + y &= 6 \\ x - y &= 2 \end{aligned}$$

just add them as they are

- a) $2y=8$
 b) $2x=8$
 c) $x+y=8$
 d) $x-y=8$

9. Translate the following sentence into an equation.

The product of nine and four less than n is twenty-seven.

- a) $9n-4=27$
 b) $9(n-4)=27$
 c) $9(4-n)=27$
 d) $9+4-n=27$

multiply $n-4$
 $9(n-4)=27$

10. Simplify: $x+6+x+3$

- a) $9x$
 b) x^2+9
 c) $2x+9$
 d) $2x+18$

$$2x+9$$

11. Solve: $\frac{3x-1}{5} = -8$

- a) $\frac{41}{5}$
 b) $-\frac{41}{5}$
 c) -13
 d) 13

5. $\frac{3x-1}{5} = -8 \cdot 5$

$$\begin{array}{r} 3x-1 = -40 \\ +1 \quad +1 \\ \hline 3x = -39 \end{array}$$

$$\frac{3x}{3} = \frac{-39}{3}$$

$$x = -13$$

12. Find the slope of the line that passes through (4, 4) and (-4, 6).

- a) -4
 b) 0
 c) $-\frac{1}{4}$
 d) no slope

①
 ②

$$\frac{6-4}{-4-4} = \frac{2}{-8} = -\frac{1}{4}$$

Solve by the graphing method. (5 pts.)

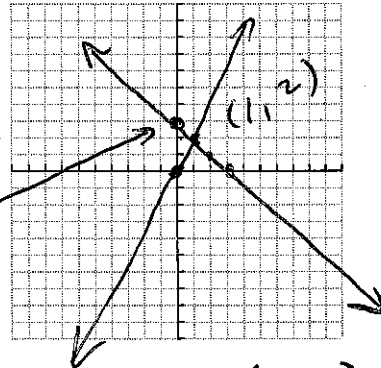
13. $x + y = 3$
 $2x - y = 0$

$\rightarrow y = -x + 3$

$y = \frac{-1}{1}x + 3$

\uparrow Start here

$2x - y = 0$
 $2x = y$
 $y = 2x + 0$
 $y = \frac{2}{1}x + 0$



13. (1, 2)

Solve by the substitution method. (5pts. each)

14. $a = 4b$
 $a - b = 9$

turn "a" into "4b"

$a = 4b$

$a - b = 9$
 $4b - b = 9$
 $3b = 9$
 $\frac{3b}{3} = \frac{9}{3}$
 $b = 3$

So $(12, 3)$

$a = 4(3)$
 $= 12$

14. (12, 3)

Solve using linear combination. (5 pts.)

15. $4x - 3y = 10$
 $5x + 6y = -7$

$5(4x - 3y = 10)$
 $-4(5x + 6y = -7)$

$20x - 15y = 50$
 $-20x - 24y = 28$

$-39y = 78$
 $\frac{-39y}{-39} = \frac{78}{-39}$
 $y = -2$

Eliminate the x's

$4x - 3(-2) = 10$

$4x + 6 = 10$
 $-6 \quad -6$

$\frac{4x}{4} = \frac{4}{4}$
 $x = 1$

15. (1, -2)

Solve using any method. (5 pts.)

16. $y = 2x - 6$
 $3x + y = 4$

I'm using substitution

$y = 2x - 6$

$3x + y = 4$

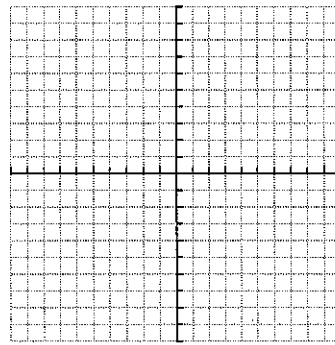
$3x + 2x - 6 = 4$

$5x - 6 = 4$

$5x = 10$

$x = 2$

So $y = 2(2) - 6$
 $= 4 - 6$



(2, -2)

16. _____

Everytime you see "y" you can write "2x-6"

17. Solve the following system of equations by linear combination or substitution. Then check by plotting the graph to show that they intersect at the coordinate point you calculated. (6 pts.)

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

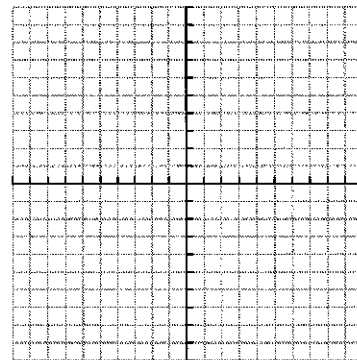
$2x - y = 6$
 ~~$x + y = 6$~~

$3x = 12$
 $x = 4$

$x + y = 6$

$4 + y = 6$

$y = 2$



(4, 2)

17. _____

18. Write a system of equations and then solve by the method of your choice.

Reserved seat tickets for the football game cost \$4.00 each and general admission tickets cost \$3.00 each. After the game is over, the turnstile count shows 1787 people attended the game. The total receipts were \$5792. Find the number of each kind of ticket sold. (6 pts.)

of Reserved seat tickets
 r

of general admission tickets
 g

$4r + 3g = 5792$

$r + g = 1787$

18. _____