

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

Multiple Choice (2 pts. each)

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

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

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

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)

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

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)

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

$$x = 6y + 3$$

$$x + 2y = 5$$

- 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?

$$x + y = 6$$

$$x - y = 2$$

- 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. $9 + 4 - n = 27$

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

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

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

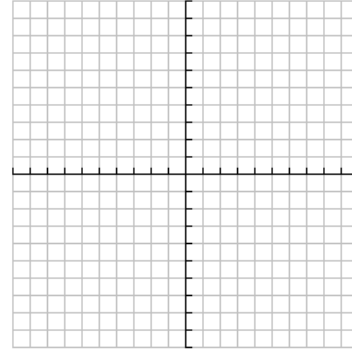
- a. $\frac{41}{5}$
- b. $-\frac{41}{5}$
- c. -13
- d. 13

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

Solve by the graphing method.(5 pts.)

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



13. _____

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

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

14. _____

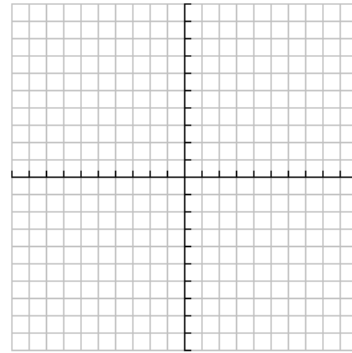
Solve using linear combination.(5 pts.)

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

15. _____

Solve using any method. (5 pts.)

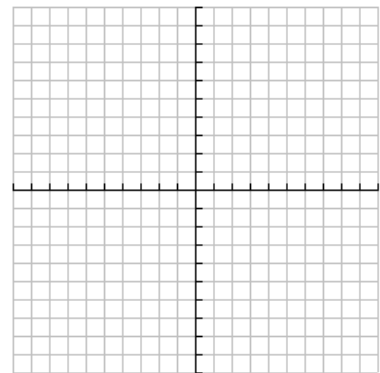
16. $y = 2x - 6$
 $3x + y = 4$



16. _____

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.)

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



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.)

18. _____

Open Response: Cell Phone Problem (10 pts.)

Nancy is trying to decide what would be the cell phone plan for her. She has narrowed her choices down to two, Spirit and Horizon. Spirit has a fixed fee of \$20 and an additional charge of 5 cents per minute. Horizon has no fixed fee and charges 15 cents per minute.

- a) Formulate and write an equation that shows the total cost for m minutes for Spirit. Explain your reasoning.
- b) Formulate and write an equation that shows the total cost for m minutes for Horizon. Explain your reasoning.
- c) Solve the system of equations using any method. Interpret your results.
- d) If Nancy knows she is going to use at least 300 minutes per month, which plan should she select? Explain your reasoning.

A large grid of graph paper for working out the solution. The grid consists of 20 columns and 20 rows of small squares, with a larger square grid pattern overlaid on it.

