

Pre-Algebra, Unit 7 Practice Test:
Analyze and Solve Pairs of Simultaneous Equations

Name:

Date:

1. Define a *system of linear equations*.

2. List the steps for solving a system of linear equations by graphing.

3. On a graph of a system of linear equations the solution appears to be $(-5, 3)$. How can you verify that the solution is exactly $(-5, 3)$?

4. For each of the following statements indicate how many solutions exist:
If the lines...
 - a. intersect, there is (are) _____ solution(s).
 - b. are parallel, there is (are) _____ solutions(s).
 - c. are the same, there is (are) _____ solutions(s).

5. List the steps for solving a system of linear equations by substitution.

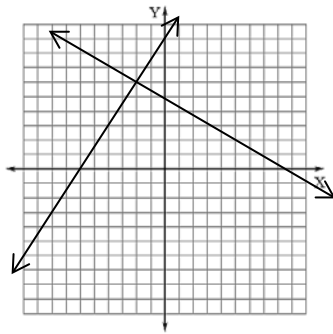
6. When solving a system of linear equations **algebraically**, how do you know when the system has
 - a. no solution?

 - b. infinitely many solutions?



7. (SE) Which ordered pair is a solution of the system graphed?

- (A) (2, 6)
 (B) (0, 5)
 (C) (-2, 6)
 (D) (-6, 0)



8. (SE) Which value of x correctly solves this system of equations?

$$y = 3x + 2$$

$$y = 6x + 8$$

- (A) $x = -4$
 (B) $x = -2$
 (C) $x = 2$
 (D) $x = 8$

9. (SE) Tommy starts his savings account with \$8 and plans to save \$4 per week. At the same time Joey has \$44 from Christmas in his account and plans to buy an App for his iPad each week at a cost of \$2 per week. During which week will the two have the same amount of money left in their savings account? Show your work.

10. (SE) How many solutions does the following system of equations have?

$$3(2x + 6) = y$$

$$2(3x + 8) = y$$

- (A) No solution
 (B) One solution
 (C) Two solutions
 (D) An infinite number of solutions

11. (SE) Which ordered pair satisfies both of these equations?

$$y = 2x + 3$$

$$y = -3x - 2$$

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

12. (SBAC)

A student solved this linear system correctly.

$$8x + 4y = 8$$

$$y = -2x + 2$$

These are the last two steps of his work.

$$8x - 8x + 8 = 8$$

$$8 = 8$$

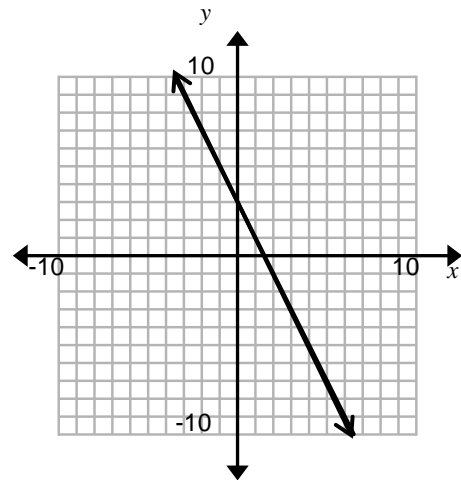
Which statement about this linear system must be true?

- A) x must equal 8
 B) y must equal 8
 C) There is no solution to this system.
 D) There are infinitely many solutions to this system.

13. (SBAC) In a system of two linear equations, one of the equations is $2x + y = 3$. Select the second equation for the system that would result in a system that....

- | | | |
|---------------------|-----------------------------|-----------------------------------|
| ...has no solution. | ...has exactly one solution | ...has infinitely many solutions. |
| (A) $2x + y = 4$ | (A) $2x + y = 4$ | (A) $2x + y = 4$ |
| (B) $2x + y = 3$ | (B) $2x + y = 3$ | (B) $2x + y = 3$ |
| (C) $3x + y = 4$ | (C) $3x + y = 4$ | (C) $3x + y = 4$ |

14. (SBAC) (A) The graph of $y = -2x + 3$ is shown. **Graph** $y = 2x - 5$ on the same coordinate plane. **Label** the solution to this system of linear equations—be sure to indicate the x and y coordinates of the solution as an ordered pair.



(B) Demonstrate a way to check your answer.

For problems 15 - 17, solve the linear systems algebraically. Show your work.

15. $y = 2x + 7$
 $y = -4x - 5$

16. $2x - y = 4$
 $7x - 2y = 5$

17. $y = 3x + 1$
 $3x - y = 3$

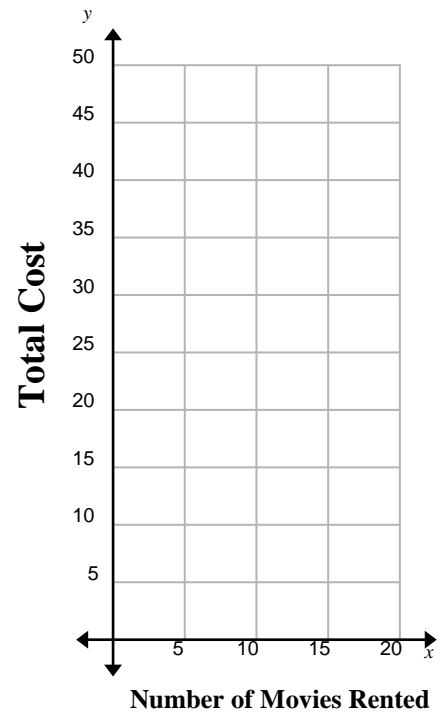
18. (SBAC)

This table represents the cost of renting movies from Movie Club A and Movie Club B. Each club charges a membership fee plus a charge for each movie rented.

Movie Club	One-Time Membership Fee	Charge per Movie
A	\$15	\$2
B	\$5	\$3

Part A

Write out a system of equations that models the cost of using each club. Then solve the system algebraically. Your answer should give the number of movies to rent which will have the same total cost regardless of which club is used, as well as the value of this total cost.



Part B

Complete the chart below by filling in the blank spaces. Then select the movie club that will be the **least** expensive for each of the specified number of movies rented by circling the appropriate cell in each row.

Number of Movies Rented	Total Cost Club A	Total Cost Club B
0		
5		
10		
15		

Part C

Solve the system by **graphing**.

Interpret the solution. _____

Which plan would be the least expensive if you plan on renting 25 movies? _____

Long Term Memory Review

19. Which of the following is true about the graph of $y = -2x + 3$?
- A. The slope is 3, and the y-intercept is -2 .
 - B. The slope is -3 , and the y-intercept is -2 .
 - C. The slope is -2 , and the y-intercept is 3.
 - D. The slope is -2 , and the y-intercept is -3 .

