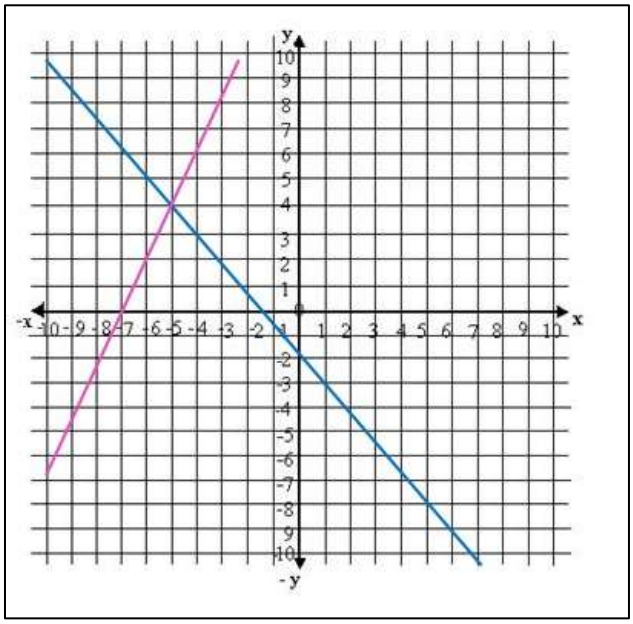
Name: _____ Period: _____ Date: _____

Unit 6 – Systems of Equations and Inequalities Review Guide

1. **Identify from the graph the solution of the system and determine if it is an independent, Inconsistent or Dependent system.**



2. **Find the solution of the following system of equations by graphing.**

$$2x + y = 6$$

$$x + y = 5$$

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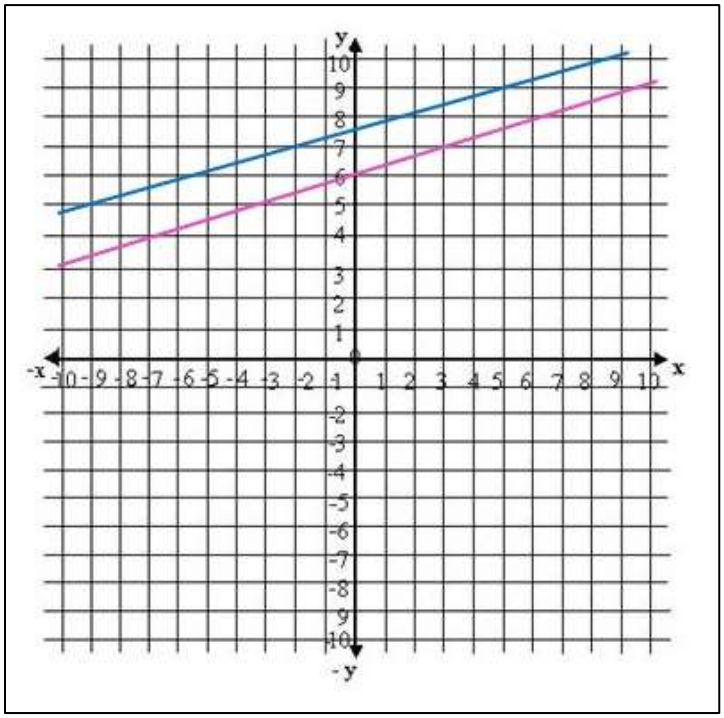
3. Identify from the graph the solution of the system and determine if it is an independent, Inconsistent or Dependent system.



4. Find the solution of the following system of equations by graphing.

$3x + 5y = 15$

$2x + 2y = 6$

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5. **If the solution of two straight lines does not exist, the two lines are:**

   a. Concurrent
   b. Perpendicular
   c. Parallel
   d. None of these

6. **Find the solution of the following system of equation by substitution and determine if it is an independent, inconsistent or dependent system.**

   $2x + y = 3$

   $5x - 2y = 4$

7. **Find the solution of the following system of equation by substitution and determine if it is an independent, inconsistent or dependent system.**

   $7x + 2y = 16$

   $-21x - 6y = 24$

8. **Find the solution of the following system of equation by substitution and determine if it is an independent, inconsistent or dependent system.**

   $-3x - 2y = -12$

   $y = 5x - 7$

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9. The method in which we substitute the value of one variable from one equation to another is known as:

a. Elimination method
b. Substitution method
c. Graphing method
d. None of these

10. The method in which we eliminate one variable from two equations to find the value of other variable is known as:

a. Elimination method
b. Substitution method
c. Graphing method
d. None of these

11. Find the solution of the following systems by elimination and determine if it is an independent, inconsistent or dependent system.

$$2x + y = 3$$

$$5x - 2y = 4$$

12. Find the solution of the following systems by elimination and determine if it is an independent, inconsistent or dependent system.

$$7x + 2y = 16$$

$$-21x - 6y = 24$$

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13. Find the solution of the following systems by elimination and determine if it is an independent, inconsistent or dependent system.

$$4x - 3y = 18$$

$$y + 2 = 0$$

14. A system of equations having no solution is known as:

a. Independent system
b. Inconsistent system
c. Dependent system
d. None of these

15. Find the solution of the following systems by elimination and determine if it is an independent, inconsistent or dependent system.

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

$$-x + y = 3$$

16. The sum of two numbers is 13 and their difference is 5. Find the numbers.

17. A flour merchant has two types of flours, one selling for $9 per pound and the other for $15 per pound. The flours are to be mixed to provide 100 lb of a mixture selling for $13.50 per pound. How much of each type of flour should be used to form 100 lb of the mixture?

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18. A chemist has a 40% and a 20% basic solution. How much of each solution should be used to form 300 ml of a 30% acid solution?

19. The sum of 5 times a larger number and twice a smaller is 6. The difference of 4 times the larger and the smaller is 4. Find the numbers.

20. A roll of 24 bills contains only $5 bills and $10 bills. If the value of the roll is $160, then how many of each bill are in the roll?

21. Express the following interval as sets:

$[\mathbf{2}, \mathbf{5}]$

22. Express the following set as intervals:

$\{\boldsymbol{x} | \boldsymbol{x} \in \boldsymbol{R},\ \mathbf{0} \leq \boldsymbol{x} \leq \mathbf{4}\}$

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23. Solve the following inequality and graph it:

$$2x + 1 \leq 7$$

24. Solve the following inequality and graph it:

$$\frac{3x-4}{2} > 5$$

25. Solve the following inequality and graph it:

$$9x + 8 \leq 3x - 2$$

26. Solve the following inequalities and graph its solution:

$$\begin{cases} x + y \geq 0 \\ 2x - y \geq 0 \end{cases}$$

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27. Solve the following inequalities and graph its solution:

$$\begin{cases} 3x + y \geq 0 \\ 2x + y \geq 0 \\ x \leq 2 \end{cases}$$

28. Jessica works as an online tutor for $6 per hour. She also works as an editor for $3. She is allowed to work 30 hours per week and she wants to make at most $60. Write and graph a system of linear inequalities.

29. Solve the following inequalities and graph its solution:

$$\begin{cases} y \geq 2x + 1 \\ y \geq -x + 3 \end{cases}$$

30. A system of inequalities has:

a. one point as solution
b. a region of solutions
c. no solution
d. None of these