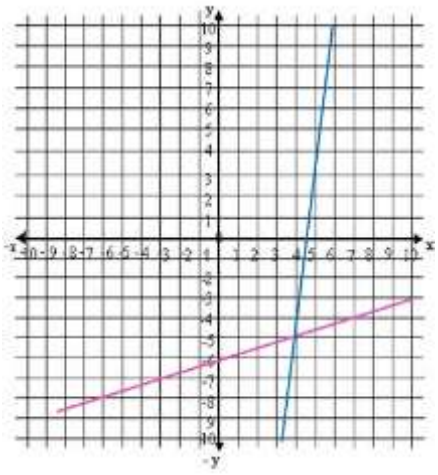
Name: _____ Period: _____ Date: _____

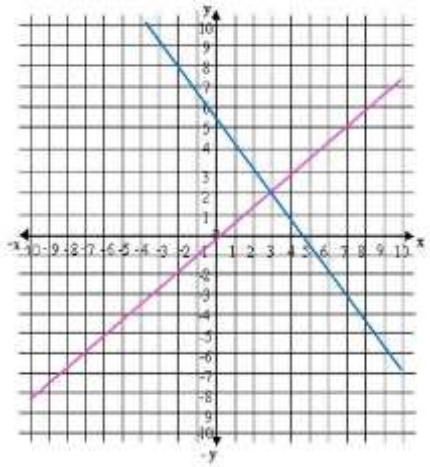
Unit 6 – Systems of Equations and Inequalities Review Guide

Identify from the graph the solution of the system and determine if it is an independent, inconsistent or dependent system

1.



2.



Find the solution of the following systems by graphing

3. $\begin{cases} x + y = 7 \\ 3x - y = -3 \end{cases}$

4. $\begin{cases} x + 4y = 1 \\ 2x + y = 5 \end{cases}$

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

5. $\begin{cases} x = 3y - 1 \\ 3x - y = 2 \end{cases}$

6. $\begin{cases} 4x - 3y = 18 \\ y + 2 = 0 \end{cases}$

7. $\begin{cases} 6x - y = 3 \\ 5x - 2y = -8 \end{cases}$

8. $\begin{cases} x + y = 4 \\ 5x - 4y = 6 \end{cases}$

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

9. $\begin{cases} 2x + 3y = 14 \\ x + 2y = 9 \end{cases}$

10. $\begin{cases} 5x - 2y = 1 \\ x + 4y = 8 \end{cases}$

11. $\begin{cases} x - y = 10 \\ x + 6y = 1 \end{cases}$

12. $\begin{cases} x + y = 3 \\ 4x + 3y = 10 \end{cases}$

Solve the following verbal problems involving linear systems:

13. One number is 3 less than 2 times another. If the sum of the numbers is 36, what are the numbers?

14. A sugar merchant has two types of sugar, one selling for $4 per pound and the other for $7 per pound. The sugars are to be mixed to provide 80 lb of a mixture selling for $12 per pound. How much of each type of sugar should be used to form 100 lb of the mixture?

15. The length of a rectangle is 5 cm less than two times its width. If the perimeter of the rectangle is 80 cm, which are the values of length and width?

16. Peter has a total investment of $7000 in two accounts. One account paying 5% interest and the other paying 8%. If the annual interest from the two investments was $500, how much did Anabel invest in each account?

Express the following intervals as sets

17. $[-3, 8]$

18. $(2, 7]$

19. $[-1, 5)$

20. $(6, \infty)$

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21. $(0, \infty)$

22. $(-\infty, 4]$

Solve the following inequalities and graph its solution

23. $4x + 6 \leq 2x + 10$

24. $9x + 8 \leq 3x - 2$

25. $6(2x - 1) \geq 4(x + 5)$

26. $x - 4 \leq \frac{1}{2}$

27. $\frac{5x+2}{3} \geq 1$

Solve the following inequalities and graph its solution

28. $\begin{cases} x + y \leq 4 \\ 3x + y \leq 6 \end{cases}$

29. $\begin{cases} 4x + y < 8 \\ -x + y \geq 2 \end{cases}$

30. $\begin{cases} 2x + y \leq 6 \\ x + y \geq 0 \\ y \leq 4 \end{cases}$

31. $\begin{cases} y \geq x + 1 \\ y > 2x \end{cases}$

Solve the following word problem:

32. Karen 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.