

Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

## NON-CALCULATOR SECTION

Vocabulary: Define each word and give an example.

1. Solution of a System of Linear Inequalities
2. Coincident Lines

Short Answer:

3. Explain how to tell if a linear system has one, none, or infinitely many solutions when solving it algebraically.
4. What is the first step for solving a system of linear equations by linear combinations?

Review:

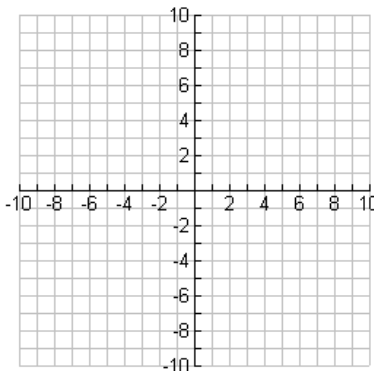
5. Solve the equation. Check your solution(s):  $-3|x+1| - 6 = -24$
6. Write the standard form of the equation of the line that passes through the points  $(-1, 4)$  and  $(-3, -9)$ .
7. The variables  $x$  and  $y$  vary directly, and  $y = -25$  when  $x = 15$ . Write an equation that relates the variables.

Problems:

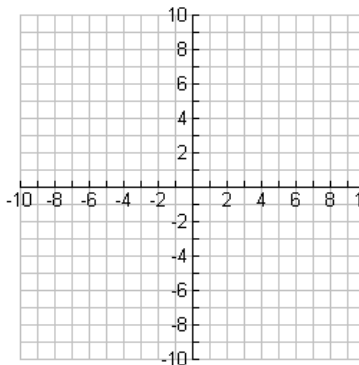
\*\*Be sure to show all work used to obtain your answer. Circle or box in the final answer.\*\*

8. Graph the following linear systems and solve:

a. 
$$\begin{aligned} 2x + y &= 9 \\ -3x + y &= -1 \end{aligned}$$



b. 
$$\begin{aligned} x - 2y &= 6 \\ -2x + 4y &= -20 \end{aligned}$$



9. Solve the linear system using the substitution method:
- $$\begin{aligned} -2y - x &= -3 \\ -7x + 3y &= -21 \end{aligned}$$

10. Solve the linear system using the linear combinations (elimination) method:
- $$\begin{aligned} \frac{1}{2}x - y &= 5 \\ x - 2y &= -3 \end{aligned}$$

11. Solve the linear systems (any method) and state how many solutions the system has. Then tell whether the lines are intersecting, parallel, or coincident.

a. 
$$\begin{aligned} \frac{1}{2}x + 3y &= 6 \\ \frac{1}{3}x - 5y &= -3 \end{aligned}$$

b. 
$$\begin{aligned} y &= -2x + 4 \\ -4x - 2y &= -8 \end{aligned}$$

Number of Solutions: \_\_\_\_\_

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Type of Lines: \_\_\_\_\_

Type of Lines: \_\_\_\_\_

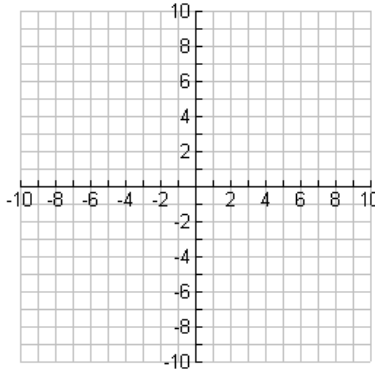
c. 
$$\begin{aligned} 2v &= 150 - u \\ 2u &= 150 - v \end{aligned}$$

Number of Solutions: \_\_\_\_\_

Type of Lines: \_\_\_\_\_

12. Graph the system of inequalities:

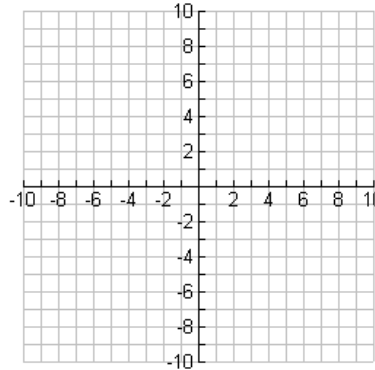
a.  $x + y < 3$   
 $2x - y \geq 5$



$$3x + y \leq 5$$

b.  $y \geq 1$

$$x \leq 1$$



13. A store sells two brands of CD players. To meet customer demand, it is necessary to stock at least twice as many CD players of brand A as of brand B. It is also necessary to have at least 10 of brand B available. In the store there is room for no more than 50 players. Write a system of inequalities to describe the ways to stock the two brands.

Multiple Choice Section: **Circle the best answer.**

14. What is the  $y$ -coordinate of the point of intersection for the two lines below?

$$-6x + 7y = 20$$

$$2x - 3y = 4$$

- A. -22  
 B. -16  
 C. 16  
 D. 22

15. How many solutions does the system of equations have?

$$-2x + 4y = 1$$

$$3x - 6y = 9$$

- A. no solution  
 B. one solution  
 C. two solutions  
 D. infinitely many solutions

16. Which ordered pair is in the solution set for the system of inequalities shown below?

$$2x - y < 3$$

$$x + 2y > -1$$

- A.  $(-2, -1)$
- B.  $(0, 1)$
- C.  $(1, -2)$
- D.  $(6, 1)$

17. Yolanda has 30 coins worth \$2.35. She has only nickels and dimes. How many dimes does Yolanda have?

- A. 15
- B. 17
- C. 19
- D. 23

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## CALCULATOR SECTION

18. A ballet company says that 540 tickets have been sold for its upcoming performance. Tickets for the Orchestra seats are \$56. Tickets for the Balcony seats are \$38. The company has sold \$24,120 in tickets. How many Orchestra and Balcony seats were sold?

19. Solve the linear system using your graphing calculator:
- $$3x + 4.02y = -9$$
- $$y = 3.1x + 30.8$$

20. A cross-trainer wants to burn 380 Calories during 40 minutes of exercise. He burns about 8 Calories per minute inline skating and 12 Calories per minute swimming. How long should he spend doing each activity?