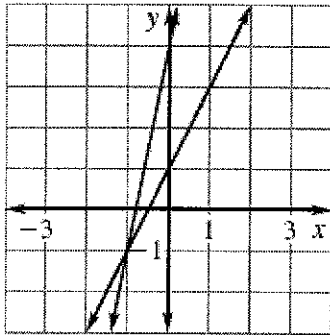


Module 11 Review: Linear Systems

1. Use the graph to solve the linear system.
 $5x - y = -4$
 $-2x + y = 1$



$(-1, -1)$

2. Determine whether the given ordered pair is a solution of the system: $(-4, 3)$

$$4x + 3y = -7$$

$$x + 2y = -6$$

$$4(-4) + 9 = -7$$

$$-16 + 9 = -7$$

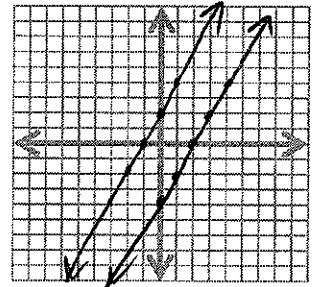
$$-7 = -7 \checkmark$$

$$-4 + 6 = -6$$

$$2 = -2 \times$$

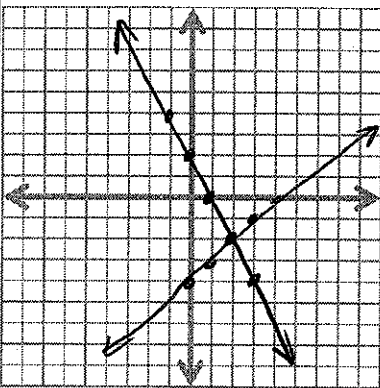
Not a Solution

3. Draw a graph of a linear system that has no solution.



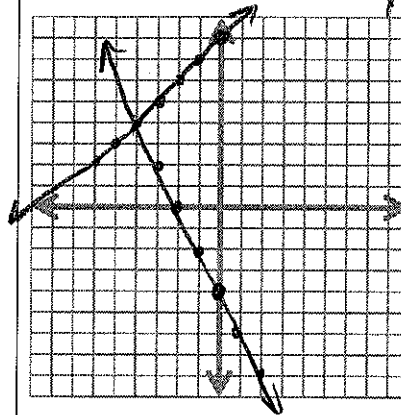
Solve each system of equations by GRAPHING.

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



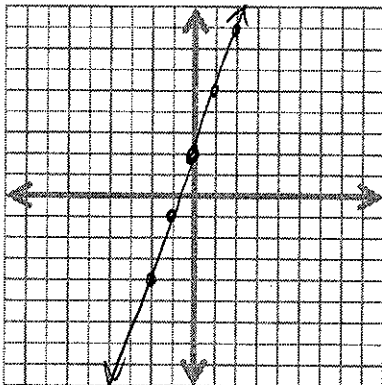
Solution $(2, -2)$

5. $2x + y = -4 \rightarrow y = -2x - 4$
 $x - y = -8 \rightarrow y = x + 8$



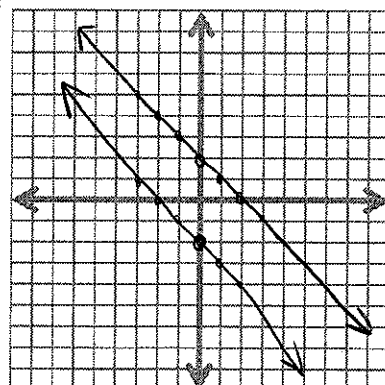
Solution $(-4, 4)$

6. $-3x + y = 2 \rightarrow y = 3x + 2$
 $-6x + 2y = 4 \rightarrow 2y = 6x + 4$
 $y = 3x + 2$



Infinite Solutions

7. $2x + 2y = -4 \rightarrow 2y = -2x - 4$
 $y = -x + 2$
 $y = -x - 2$



Solution No Solution

Solve 8-9 by substitution:

8. $-4x + y = -2 \rightarrow y = 4x - 2$
 $3x + 2y = -4$
 $3x + 2(4x - 2) = -4$
 $3x + 8x - 4 = -4$
 $11x = 0 \quad 3(0) + 2y = -4$
 $x = 0 \quad 2y = -4$
 $y = -2$
(0, -2)

9. $x - 5y = -26 \rightarrow x = 5y - 26$
 $6x + y = -1$
 $6(5y - 26) + y = -1$
 $30y - 156 + y = -1$
 $31y = 155$
 $y = 5 \quad x = 5(5) - 26$
 $x = -1$
(-1, 5)

Solve 10-11 by elimination:

10. $4(-3x - y) = -15(4)$
 $8x + 4y = 48$
 $-12x - 4y = -60$
 $-4x = -12$
 $x = 3$
 $-3(3) - y = -15 \rightarrow y = 6$
 $-9 - y = -15$
(3, 6)

11. $-5(2x + 7y) = 2(-5) \quad -10x - 35y = 10$
 $2(5x - 2y) = 83(2) \quad +10x - 4y = 166$
 $-39y = 156$
 $y = 4$
 $2x + 7(4) = 2$
 $2x + 28 = 2$
 $2x = -26$
 $x = -13$
(-13, 4)

Define variables and set up a system of equations to represent each situation, and solve.

12. The cost of 2 pounds of oranges and 3 pounds of bananas is \$4.65. The cost of 2 pounds of oranges and 8 pounds of bananas is \$8.40. Find the cost of 1 pound of oranges and 1 pound of bananas.

Let $x = \text{cost 1 lb. oranges}$
 $y = \text{cost 1 lb. bananas}$
 $2x + 3y = 4.65$
 $2x + 8y = 8.40$
 $-2x - 3y = -4.65$
 $5y = 3.75$
 $y = .75$
 $2x + 3(.75) = 4.65$
 $2x + 2.25 = 4.65$
 $2x = 2.4$
 $x = 1.2$
Oranges \$1.20/lb.
Bananas \$.75/lb.

13. A radio station is raising money for charity. Listeners can pledge \$10 to dedicate a song or \$25 to wish someone Happy Birthday. 42 listeners make one pledge each, and the station collects \$630. How many listeners pledge \$25 to wish someone Happy Birthday?

Let $x = \# \text{ song ded.}$
 $y = \# \text{ birthday wishes}$
 $10x + 25y = 630$
 $-10x - 10y = -420$
 $15y = 210$
 $y = 14$
 $x + y = 42$
 $x = 28$
14 people

14. A school replaces pieces some band uniforms. They order 16 new jackets and 20 new hats. Later, 3 new members join the band and the school orders 3 more jackets and 3 more hats. The first order costs \$1080 and the second order costs \$189. What is the price of 1 hat? Let $x = \text{cost 1 coat}$, $y = \text{cost 1 hat}$

$3(16x + 20y) = 1080 \cdot 3$
 $-16(3x + 3y) = 189(-16)$
 $48x + 60y = 3240$
 $-48x - 48y = -3024$
 $12y = 216$
 $y = 18$
\$18 for 1 hat

15. Annie and Sarah go to a pick-your-own apple orchard. Annie picks 4 more than twice as many apples as Sarah picks. Together, they pick 67 apples. How many apples did they each pick?

$x = \text{Amount Annie picks}$
 $y = \text{Amt. Sarah picks}$
 $x + y = 67$
 $x = 4 + 2y$
 $4 + 2y + y = 67$
 $4 + 3y = 67$
 $3y = 63$
 $y = 21$
 $x = 46$
Annie picked 46
Sarah picked 21