

Chapter 6 Review

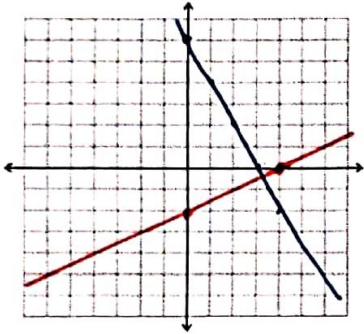
Form G

Solve each system by **graphing (6.1)**.

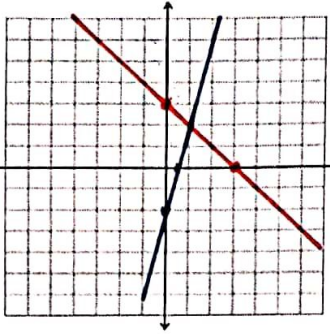
Tell whether the system has *one solution*, *infinitely many solutions*, or *no solution*.

$$\begin{array}{r|l} x & y \\ \hline 0 & -2 \\ 4 & 0 \end{array}$$

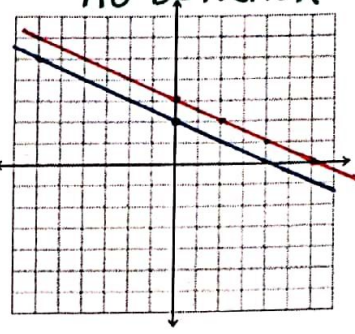
1. $x - 2y = 4$
 $y = -2x + 6$, $b = 6$, $m = -2$
one solution



2. $x + y = 3$
 $8x - 2y = 4$
one solution



3. $2x = -4y + 12$
 $6y = -3x + 12$
 $-4y = \frac{2x - 12}{-4}$
 $y = -\frac{1}{2}x + 3$
 $y = -\frac{1}{2}x + 2$
No solution



Solve each system using **substitution (6.2)**.

4. $x = 4y$
 $x + 2y = 66$
 $4y + 2y = 66$
 $6y = 66$
 $y = 11$
 $x = 4(11)$
 $x = 44$
(44, 11)

5. $y = x - 7$
 $3x + y = 17$
 $3x + x - 7 = 17$
 $4x - 7 = 17$
 $4x = 24$
 $x = 6$
 $y = 6 - 7 = -1$
(6, -1)

6. $y = x + 2$
 $2x + y = 8$
 $2x + x + 2 = 8$
 $3x + 2 = 8$
 $3x = 6$
 $x = 2$
 $y = 2 + 2 = 4$
(2, 4)

Solve each system using **elimination (6.3)**.

7. $x + y = 4$
 $x - y = 6$
 $2x = 10$
 $x = 5$
 $5 + y = 4$
 $y = -1$
(5, -1)

8. $-2x + 3y = 9$
 $2x - 2y = -4$
 $y = 5$
 $2x - 2(5) = -4$
 $2x - 10 = -4$
 $2x = 6$
 $x = 3$
(3, 5)

9. $2(x + y) = 14$
 $3x - 2y = 11$
 $2x + 2y = 14$
 $5x = 25$
 $x = 5$
 $5 + y = 7$
 $y = 2$
(5, 2)

10. $7x - 8y = 11$
 $8x - 7y = 7$

11. $0.4x + 0.3y = 1.7$
 $0.7x - 0.2y = 0.8$

12. $3x - 7y + 10 = 0 \rightarrow 3x - 7y = -10$
 $y - 2x - 3 = 0 \rightarrow -2x + y = 3$
 $14x + 7y = 21$
 $-11x = 11$
 $x = -1$
 $-2(-1) + y = 3$
 $2 + y = 3$
 $y = 1$
(-1, 1)

Write a system of equations to model each situation. Solve by any method. (6.4)

13. A wallet contains a total of 61 bills, a combination of \$1 bills & \$5 bills. The total value of the bills is \$201. How many bills of each type does the wallet contain?

$x \rightarrow$ \$1 bills
 $y \rightarrow$ \$5 bills

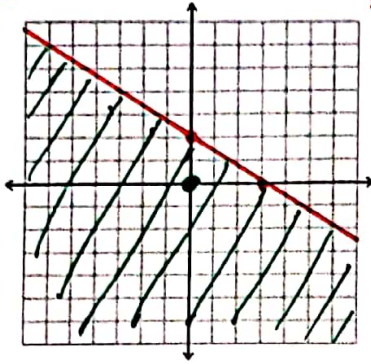
$$\begin{array}{r} -(x + y = 61) \\ \$1x + \$5y = 201 \\ -x + -y = -61 \\ \hline 4y = 140 \\ y = 35 \end{array}$$

$x + 35 = 61$
 $x = 26$
26, \$1 bills
35, \$5 bills

$$\begin{array}{r|l} x & y \\ \hline 0 & 2 \\ 3 & 0 \end{array}$$

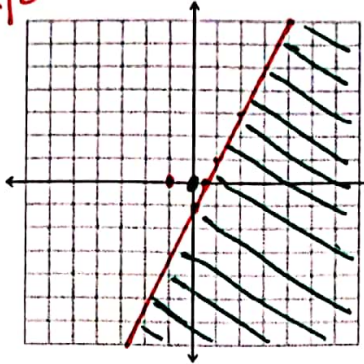
Graph each inequality in the coordinate plane (6.5).

14. $2x + 3y \leq 6$ $0 + 0 \leq 6$ yes



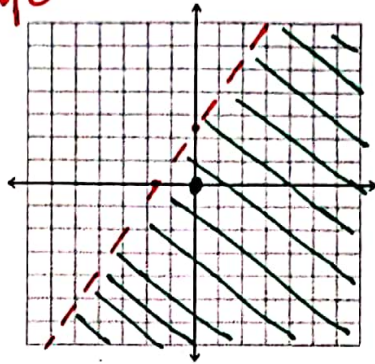
$$\begin{array}{r|l} x & y \\ \hline 2 & 0 \\ 0 & -1 \end{array}$$

15. $2x - y \geq 1$ $0 - 0 \geq 1$ No

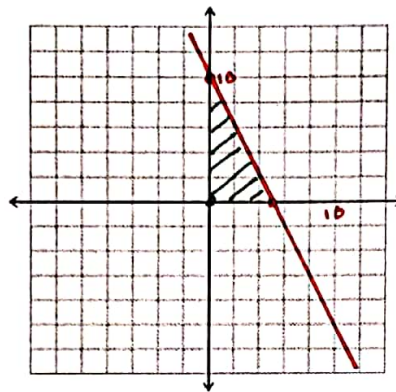


$$\begin{array}{r|l} x & y \\ \hline 0 & 2.5 \\ -1.6 & 0 \end{array}$$

16. $-3x + 2y < 5$ $0 + 0 < 5$ yes



17. For a party, you can spend no more than \$20 on cakes. Egg cake cost \$4 and cream cake cost \$2. Write the linear inequality that models the situation. Graph the inequality.



$x = \text{Egg Cake}$
 $y = \text{Cream Cake}$

$$4x + 2y \leq 20$$

$$\begin{array}{r|l} x & y \\ \hline 0 & 10 \\ 5 & 0 \end{array}$$

$0 + 0 \leq 20$
yes

18. Error Analysis A student determined that (1, 1) is one of the solutions of the linear inequality $y \leq 2x - 3$, as shown below. What error did the student make?

$$\begin{array}{l} y \leq 2x - 3 \\ 1 \leq 2(1) - 3 \\ 1 \leq -1 \end{array}$$

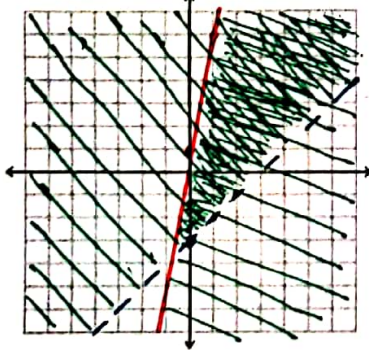
$$\rightarrow 1 \leq 2 - 3 \\ 1 \leq -1$$

The student did not consider the 3 to be a negative value.

Solve each system by graphing (6.6)

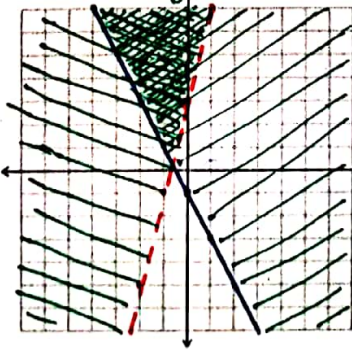
19. $y \leq 5x + 1$ $0 \leq 1$ yes

$y > x - 3$ $0 > -3$ yes



20. $y > 4x + 3$ $0 > 0 + 3$ No

$y \geq -2x - 1$ $0 \geq 0 - 1$ yes



21. $y > -x + 2$ $0 > 0 + 2$ No

$y > x - 4$ $0 > 0 - 4$ yes

