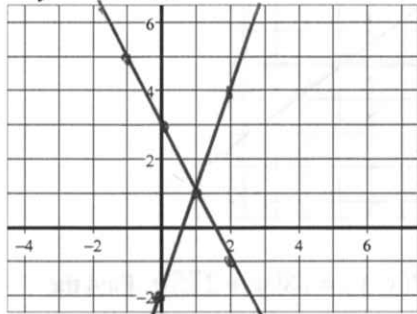


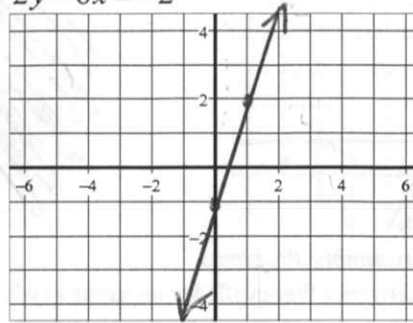
## Algebra 2 Chapter 3 Practice Test

Solve each system of equations by graphing:

1.  $y = 3x - 2$   
 $y = -2x + 3$  Answer: (1, 1)



2.  $3x - y = 1$   
 $2y - 6x = -2$  Answer: Infinite many



Refer to equations 1 and 2. State whether the system is "Consistent and Dependent", "Consistent and Independent", or "Inconsistent."

3. Exercise 1 Consistent / Independent      4. Exercise 2 Consistent / Dependent

Solve each system by substitution, work must be shown.

5.  $x - 3y = 4$   
 $3x + 2y = 1$  Answer: (1, -1)

$$\begin{aligned} x &= 4 + 3y & x &= 4 + 3(-1) \\ 3(4 + 3y) + 2y &= 1 & x &= 4 - 3 \\ 12 + 9y + 2y &= 1 & x &= 1 \\ 12 + 11y &= 1 & & \\ 11y &= -11 & & \\ y &= -1 & & \end{aligned}$$

6.  $4x - 3y = -23$   
 $x + 7y = 2$  Answer: (-5, 1)

$$\begin{aligned} x &= 2 - 7y & x &= 2 - 7(1) \\ 4(2 - 7y) - 3y &= -23 & x &= -5 \\ 8 - 28y - 3y &= -23 & & \\ 8 - 31y &= -23 & & \\ -31y &= -31 & & \\ y &= 1 & & \end{aligned}$$

Solve each system by elimination, work must be shown.

7.  $3x - y = 10$   
 $4x - y = 16$  Answer: (6, 8)

$$\begin{aligned} -3x + y &= -10 \\ \hline x &= 6 \\ 3(6) - y &= 10 \\ 18 - y &= 10 \\ -y &= -8 \\ y &= 8 \end{aligned}$$

8.  $-3(5x + 4y = 10)$   
 $5(3x + 5y = -7)$  Answer: (6, -5)

$$\begin{aligned} -15x - 12y &= -30 \\ 15x + 25y &= -35 \\ \hline 13y &= -65 \\ y &= -5 \\ 5x + 4(-5) &= 10 \\ 5x - 20 &= 10 \\ 5x &= 30 \\ x &= 6 \end{aligned}$$

Solve, work must be shown.

1.  $x + 2y - z = -7$   
 $2x - 2y - z = 6$  Answer: (1, -3, 2)  
 $(x + y - 2z = -6)$

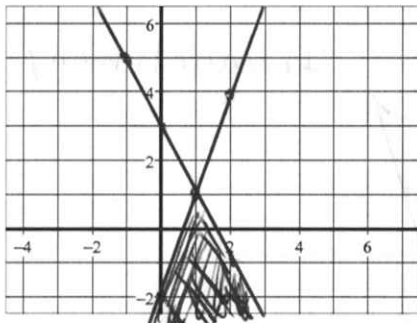
$$\begin{aligned} x + 2y - z &= -7 \\ -2x - 2y + 4z &= 12 \\ \hline 3x - 2z &= -1 \\ 3(-x + 3z) &= 5 \\ 3x - 2z &= -1 \\ -3x + 9z &= 15 \\ \hline 7z &= 14 \\ z &= 2 \end{aligned}$$

$$\begin{aligned} 3x - 2(2) &= -1 \\ 3x - 4 &= -1 \\ 3x &= 3 \\ x &= 1 \end{aligned}$$

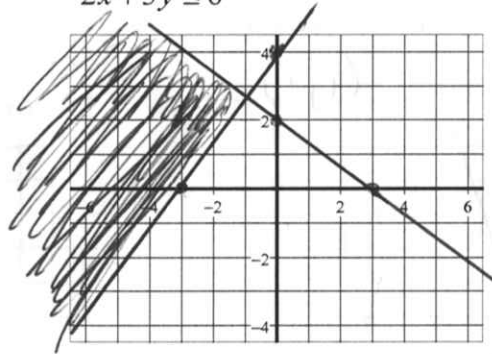
$$\begin{aligned} 1 + 2y - (2) &= -7 \\ -1 + 2y &= -7 \\ 2y &= -6 \\ y &= -3 \end{aligned}$$

Solve each system by graphing.

10.  $y \leq 3x - 2$   
 $y \leq -2x + 3$



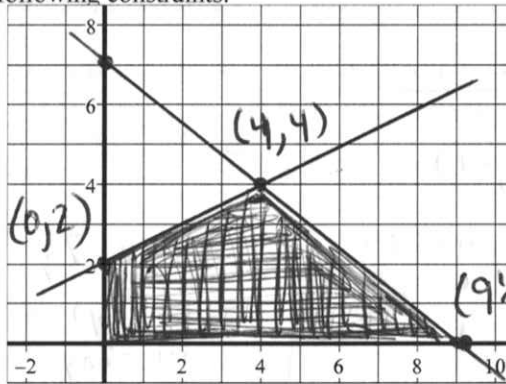
11.  $4x - 3y \leq -12$   
 $2x + 3y \leq 6$



Solve the Linear Programming Problems

12-13. Mr. Duffy determines that profit for his company is determined by  $P(x, y) = 180x + 275y$ . Find the maximum profit under the following constraints.

$y \leq \frac{1}{2}x + 2$   
 $y \leq -\frac{3}{4}x + 7$   
 $x \geq 0$   
 $y \geq 0$



Answer: 1820

14-17 A clothing company makes jackets and pants. Each requires two operations, A and B. Operation A is limited to 20 hours per day. Operation B is limited to 32 hours per day. For a jacket to be made it takes 1 hour in operation A and 4 hours in operation B. Whereas pants take 2 hours in operations A and 2 hours in operation B. If the jackets have a profit of \$14 and pants have a profit of \$10, how many jackets and pants should be made to maximize the profits?

Graph of constraints:

$x = \text{jackets}$   
 $y = \text{pants}$

Constraints:

$x + 2y \leq 20$   
 $4x + 2y \leq 32$   
 $x \geq 0$   
 $y \geq 0$

Profit Function:

$P(x, y) = 14x + 10y$

Answer:

4 jackets, 8 pants

Label axis please!!

