

**Chapter 5**

**Test A**

Solve the system of linear equations using any method.

1.  $-6x + 5y = 1$   
 $+ 6x + 4y = -10$

$9y = -9$   
 $y = -1$   
 $-6x + 5(-1) = 1$   
 $-6x - 5 = 1$   
 $-6x = 6$   
 $x = -1$

$(-1, -1)$

2.  $\frac{1}{2}x + y = -1$   
 $y = \frac{1}{4}x - 4$

$\frac{1}{2}x + \frac{1}{4}x - 4 = -1$   
 $\frac{3}{4}x = 3$   
 $x = 4$   
 $\frac{1}{2}(4) + y = -1$   
 $2 + y = -1$   
 $y = -3$

$(4, -3)$

3.  $-7x - 2y = -13$   
 $-x + 2y = 11$

$-8x = -24$   
 $x = 3$   
 $-7(3) - 2y = -13$   
 $-21 - 2y = -13$   
 $-2y = 8$   
 $y = -4$

$(3, -4)$

4.  $-5x + y = -3$   
 $3x - 8y = 24$   
 $y = 5x - 3$

$3x - 8(5x - 3) = 24$   
 $3x - 40x + 24 = 24$   
 $3x - 40x = 0$   
 $-37x = 0$   
 $x = 0$   
 $y = 5(0) - 3 = -3$

$(0, -3)$

5.  $(3x - 2y = 2) \cdot 5$   
 $(5x - 5y = 10) \cdot 2$

$-15x + 10y = -10$   
 $10x - 10y = 20$   
 $-5x = 10$   
 $x = -2$   
 $3(-2) - 2y = 2$   
 $-6 - 2y = 2$   
 $-2y = 8$   
 $y = -4$

$(-2, -4)$

6.  $6x + 6y = -6$   
 $5x + y = -13$

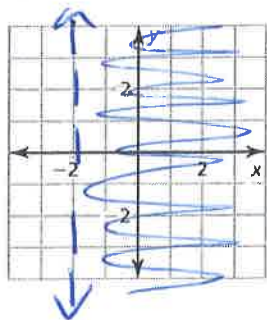
$6x + 6y = -6$   
 $-30x - 6y = +78$   
 $-24x = 72$   
 $x = -3$

$5(-3) + y = -13$   
 $-15 + y = -13$   
 $y = 2$

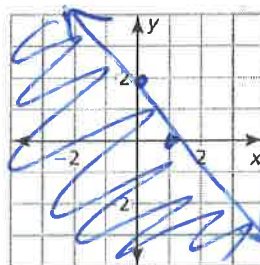
$(-3, 2)$

Graph the inequality in a coordinate plane.

7.  $x > -2$



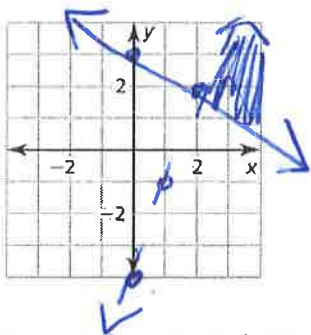
8.  $y \leq -2x + 2$



Graph the system of linear inequalities.

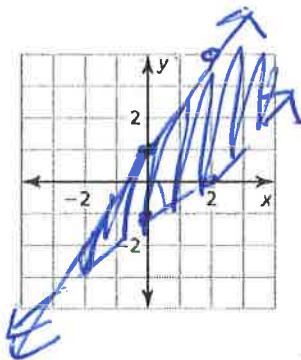
9.  $y < 3x - 4$

$y \geq -\frac{1}{2}x + 3$



10.  $3x - 2y \geq -2$

$x - 2y < 2$



$-2y \geq -3x - 2$

$y \leq \frac{3}{2}x + 1$

$-2y < -x + 2$

$y > \frac{1}{2}x - 1$

11. Two students are going to the store to buy school supplies for the new school year. One of the students buys 2 packs of pencils and 3 packs of pens for \$8.25. Her friend purchases 5 packs of pencils and 2 packs of pens for \$11.00. Is there enough information to determine the cost of 1 pack of pencils and 1 pack of pens? If so, find the cost of each.

$2p + 3n = 8.25$

$5p + 2n = 11.00$

$2n = 11 - 5p$

$n = 5.5 - 2.5p$

$2p + 3(5.5 - 2.5p) = 8.25$

$2p + 16.5 - 7.5p = 8.25$

$-5.5p = -8.25$

$p = 1.50$

$2(1.50) + 3n = 8.25$

$3 + 3n = 8.25$

$3n = 5.25$

$n = 1.75$

pencils cost \$1.50 and pens cost \$1.75

**Chapter 5**

**Test A (continued)**

Compare the slopes and y-intercepts of the graphs of the equations in the linear system to determine whether the system has one solution, no solution, or infinitely many solutions. Explain.

12.  $-3x + 3y = 4$   
 $-x + y = 3$

$3y = 3x + 4$   
 $y = x + 4/3$

$y = x + 3$

Same slope  
 Different y-int.  
 No solution.

13.  $2x + 3y = -6$   
 $-4x - 6y = 12$

$3y = -2x - 6$   
 $y = -\frac{2}{3}x - 2$

$-6y = 4x + 12$

$y = -\frac{2}{3}x - 2$

same line  
 Infinite Sol.

14.  $x + y = 7$   
 $2x - 3y = -21$

$y = -x + 7$

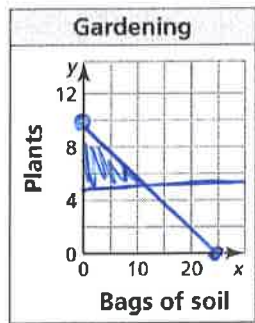
$-3y = -2x - 21$

$y = \frac{2}{3}x - 7$

one sol.

15. You are buying plants and soil for your garden. The soil costs \$4.00 per bag and the plants cost \$10.00 each. You want to buy at least 5 plants and can spend no more than \$100 total.

- Write a system of linear inequalities to model the situation.
- Graph the system of linear inequalities.



$4x + 10y \leq 100$

$y \geq 5$

$(0, 10) (25, 0)$

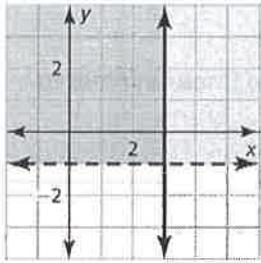
- Identify and interpret a solution to the system.

$(10, 6)$

10 bags of soil and 6 plants

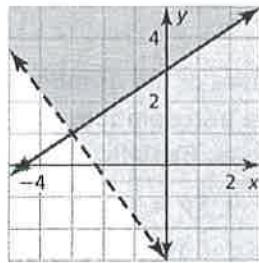
Write a system of linear inequalities represented by the graph.

16.



$$y > -1 \quad x \leq 3$$

17.



$$y \geq \frac{2}{3}x + 3$$

$$y > -\frac{1}{3}x - 3$$

Solve the equation by graphing. Check your solutions.

18.  $2x = -x + 3$

19.  $2x - 1 = 5x + 5$

20.  $|3x - 4| = |x|$

$$x = 1$$

$$x = -2$$

$$x = 1 \quad x = 2$$