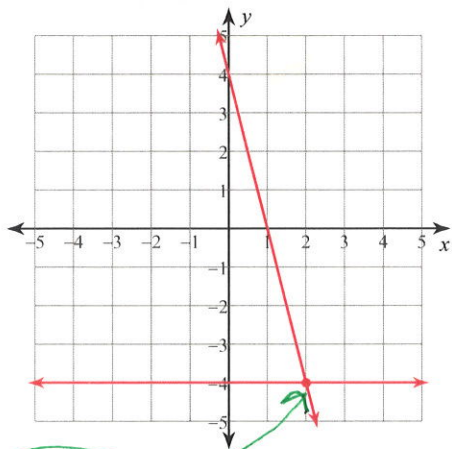


2.1 & 2.6 Practice Test

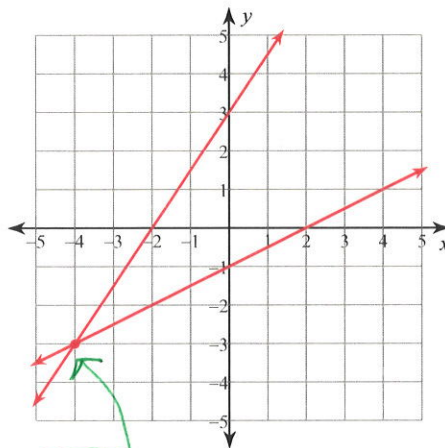
**SOLVE EACH SYSTEM BY GRAPHING.**

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



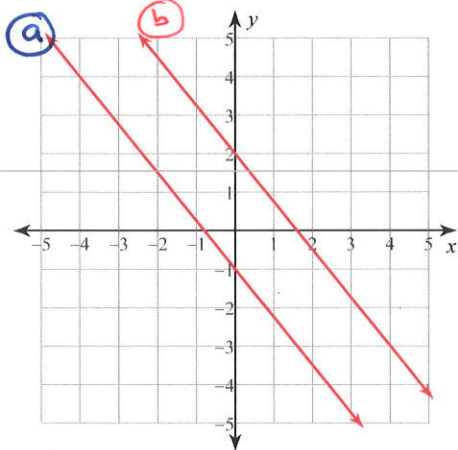
$(2, -4)$

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



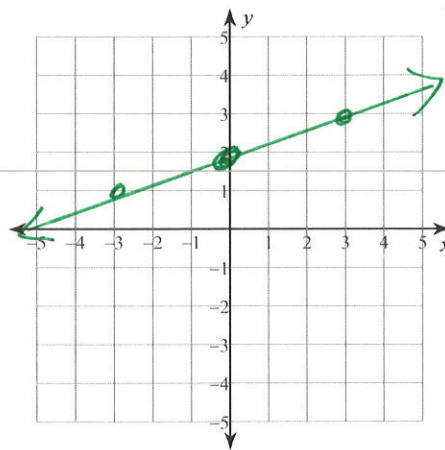
$(-4, -3)$

3)  $5x + 4y = -4$   
 $5x + 4y = 8$



No solution

4)  $3y = x + 6$   
 $x - 3y = -6$



INFINITE SOLUTIONS

a)  $5x + 4y = -4$   
 $-5x$   $-5x$   
 $\frac{4y}{4} = \frac{-5x - 4}{4} \rightarrow y = \frac{5}{4}x - 1$

b)  $5x + 4y = 8$   
 $-5x$   $-5x$   
 $\frac{4y}{4} = \frac{-5x + 8}{4} \rightarrow y = -\frac{5}{4}x + 2$

a)  $\frac{3y}{3} = \frac{x + 6}{3}$   
 $y = \frac{1}{3}x + 2$

b)  $x - 3y = -6$   
 $-x$   $-x$   
 $-\frac{3y}{-3} = \frac{-x - 6}{-3}$   
 $y = \frac{1}{3}x + 2$

Solve each system by elimination.

$$\begin{array}{r}
 5) \quad -12x + 14y = -10 \rightarrow -12x + 14y = -10 \\
 2(6x - 7y = 1) \rightarrow 12x - 14y = 2 \\
 \hline
 0 \neq -8
 \end{array}$$

**NO SOLUTION**

Variables drop out and numbers are NOT EQUAL

$$\begin{array}{r}
 6) \quad (14x + 4y = -4) \rightarrow 14x + 4y = -4 \\
 (7x + 2y = -2) \times 2 \rightarrow 14x + 4y = 4 \\
 \hline
 0 = 0
 \end{array}$$

**INFINITE SOLUTIONS**

Variables drop out and numbers are EQUAL

$$\begin{array}{r}
 7) \quad (-5x + y = 7) \times 3 \rightarrow -15x + 3y = 21 \\
 -6x + 3y = 12 \rightarrow -6x + 3y = 12 \\
 \hline
 9x = -9 \\
 \frac{9x}{9} = \frac{-9}{9} \\
 \boxed{X = -1}
 \end{array}$$

FIND Y:

$$\begin{array}{r}
 -5(-1) + y = 7 \\
 5 + y = 7 \\
 -5 \quad -5 \\
 \hline
 \boxed{y = 2}
 \end{array}$$

**(-1, 2)**

$$\begin{array}{r}
 8) \quad (2x + 5y = -11) \times 5 \rightarrow 10x + 25y = -55 \\
 (5x + 3y = 20) \times 2 \rightarrow 10x + 6y = 40 \\
 \hline
 19y = -95 \\
 \frac{19y}{19} = \frac{-95}{19} \\
 \boxed{y = -5}
 \end{array}$$

FIND X

$$\begin{array}{r}
 5x + 3(-5) = 20 \\
 5x - 15 = 20 \\
 +15 \quad +15 \\
 \hline
 5x = 35 \\
 \frac{5x}{5} = \frac{35}{5} \\
 \boxed{X = 7}
 \end{array}$$

**(7, -5)**

$$\begin{array}{r} 9) \quad -5x - y = 13 \\ \quad \quad 9x + y = -25 \end{array}$$

$$\begin{array}{r} \cancel{4x} = -12 \\ \hline 4 \quad \quad 4 \end{array}$$

$$\boxed{x = -3}$$

FIND Y

$$9(-3) + y = -25$$

$$-27 + y = -25$$

$$\begin{array}{r} +27 \quad \quad +27 \\ \hline \end{array}$$

$$\boxed{y = 2}$$

$$\boxed{(-3, 2)}$$

Solve each system by substitution.

$$\begin{array}{l} 11) \quad y = -4x + 13 \\ \quad \quad 4x + 4y = 16 \end{array}$$

$$4x + 4(-4x + 13) = 16$$

$$4x - 16x + 42 = 16$$

$$-12x + 42 = 16$$

$$\begin{array}{r} -52 \quad -52 \\ \hline \end{array}$$

$$\begin{array}{r} -12x = -36 \\ \hline -12 \quad -12 \end{array}$$

$$\boxed{x = 3}$$

FIND Y

$$y = -4(3) + 13 = 1$$

$$\boxed{(3, 1)}$$

$$\begin{array}{l} 10) \quad 2x - 4y = -8 \\ \quad \quad -1(6x - 4y = 16) \end{array}$$

$$\begin{array}{r} 2x - 4y = -8 \\ \hline -6x + 4y = -16 \\ \hline -4x = -24 \\ \hline -4 \quad -4 \end{array}$$

$$\boxed{x = 6}$$

FIND Y:

$$2(6) - 4y = -8$$

$$\begin{array}{r} 12 - 4y = -8 \\ \hline -12 \quad -12 \end{array}$$

$$\begin{array}{r} -4y = -20 \\ \hline -4 \quad -4 \end{array}$$

$$\boxed{y = 5}$$

$$\boxed{(6, 5)}$$

$$\begin{array}{l} 12) \quad y = 7x - 10 \\ \quad \quad y = -5x + 14 \end{array}$$

$$\begin{array}{r} 7x - 10 = -5x + 14 \\ +5x \quad \quad +5x \\ \hline \end{array}$$

$$\begin{array}{r} 12x - 10 = 14 \\ +10 \quad +10 \\ \hline \end{array}$$

$$12x = 24$$

$$\boxed{x = 2}$$

FIND Y

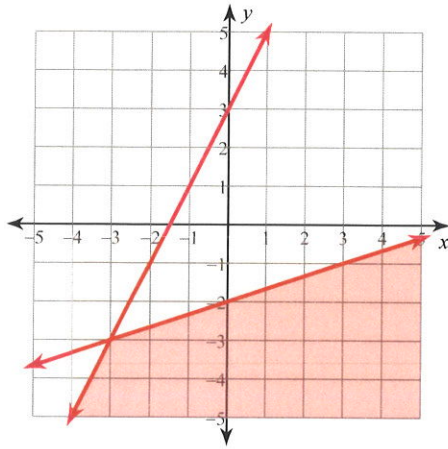
$$y = 7(2) - 10 = 4$$

$$\boxed{(2, 4)}$$

**SOLVE EACH SYSTEM OF INEQUALITIES BY GRAPHING.**

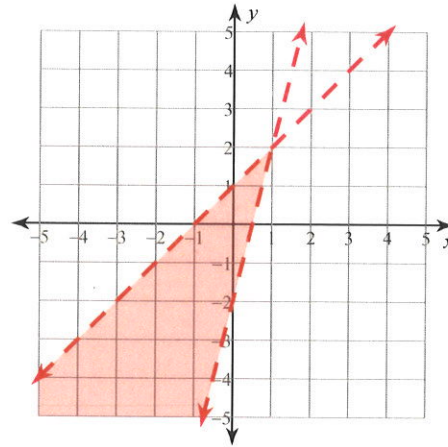
13)  $y \leq \frac{1}{3}x - 2$   
 $y \leq 2x + 3$

SOLID LINES FOR  $=, \leq, \geq$



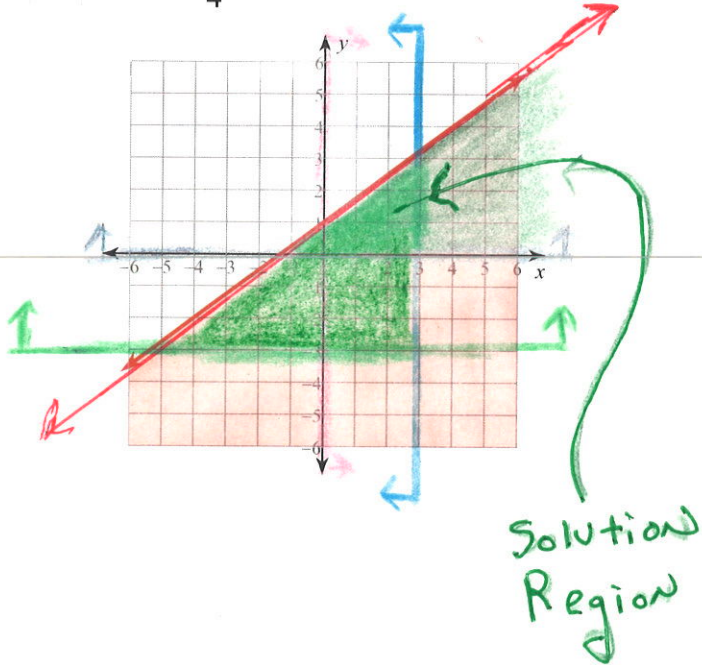
14)  $y < x + 1$   
 $y > 4x - 2$

DOTTED LINES FOR  $<, >$

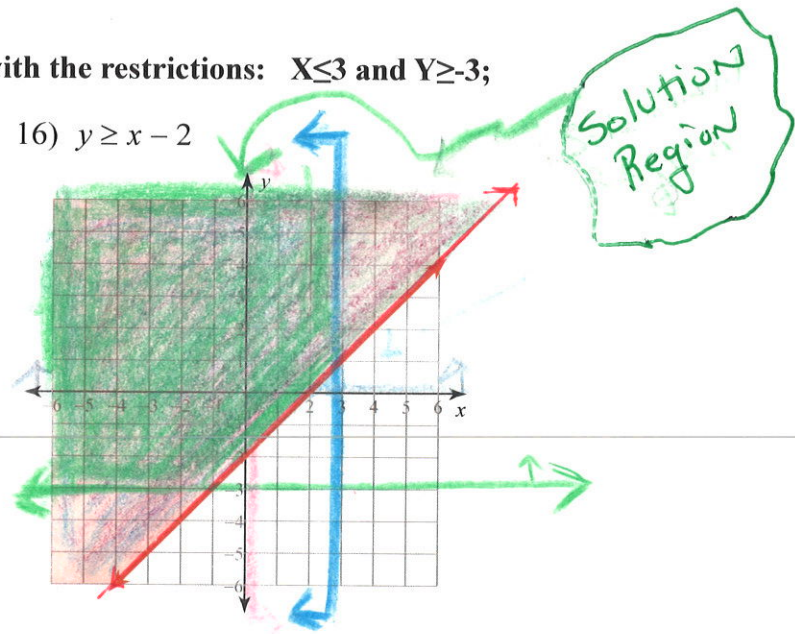


**GRAPH EACH SYSTEM OF INEQUALITIES; with the restrictions:  $X \leq 3$  and  $Y \geq -3$ ;**

15)  $y \leq \frac{3}{4}x + 1$



16)  $y \geq x - 2$

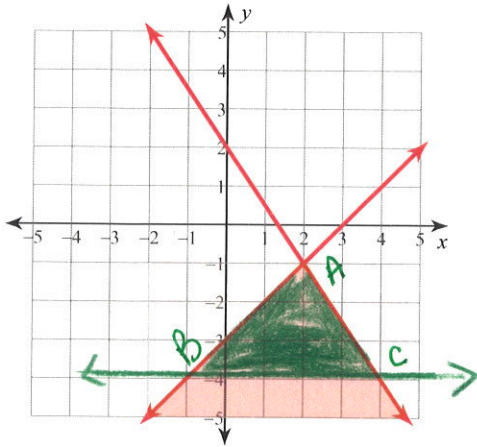


**GRAPH and FIND THE VERTICES FOR EACH SYSTEM OF INEQUALITIES.**

$y \geq -4$

17)  $y \leq x - 3$

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



VERTICES  
 A (2, -1)  
 B (-1, -4)  
 C (4, -4)

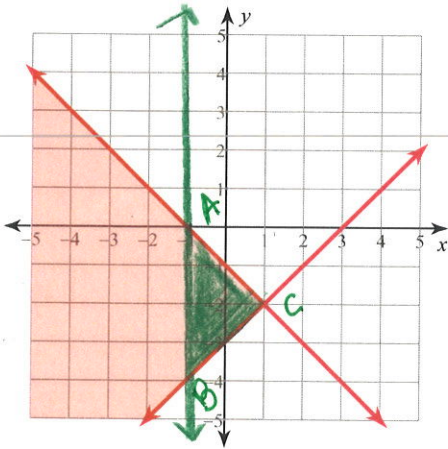
**GRAPH and FIND THE VERTICES FOR EACH SYSTEM OF INEQUALITIES.**

$x \geq -1$

18)  $y \leq -x - 1$

$y \geq x - 3$

19) skip  
 skip

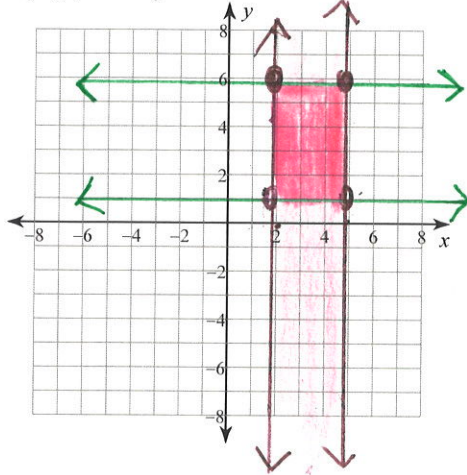


VERTICES  
 A (-1, 0)  
 B (-1, -4)  
 C (1, -2)

- (1) Graph system of inequalities;
- (2) Find the vertices;
- (3) Find the maximum and the minimum for  $f(x,y)$ .

20)  $x \leq 5$   
 $y \leq 6$   
 $x \geq 2$   
 $y \geq 1$

$f(x,y) = x + 4y$



①  $(2,1)$  ← MIN  
 $f(2,1) = 2 + 4(1) = 6$

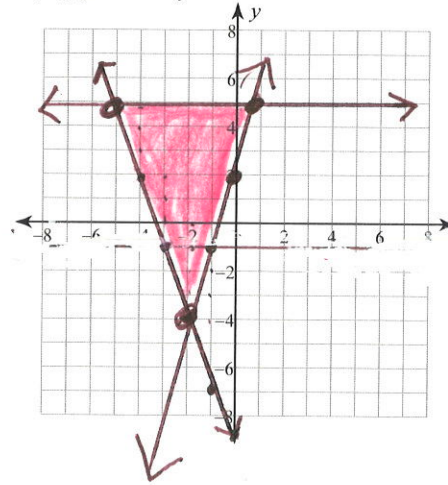
②  $(5,1)$   
 $f(5,1) = 5 + 4(1) = 9$

③  $(2,6)$   
 $f(2,6) = 2 + 4(6) = 26$

④  $(5,6)$  ← MAX  
 $f(5,6) = 5 + 4(6) = 29$

21)  $x \leq 5$   
 $y \geq 3x + 2$   
 $y \geq -3x - 10$

$f(x,y) = 2x + 2y$



①  $(-5,5)$   
 $f(-5,5) = 2(-5) + 2(5) = 0$

②  $(1,5)$  ← MAX  
 $f(1,5) = 2(1) + 2(5) = 12$

③  $(-2,-4)$  ← MIN  
 $f(-2,-4) = 2(-2) + 2(-4) = -12$