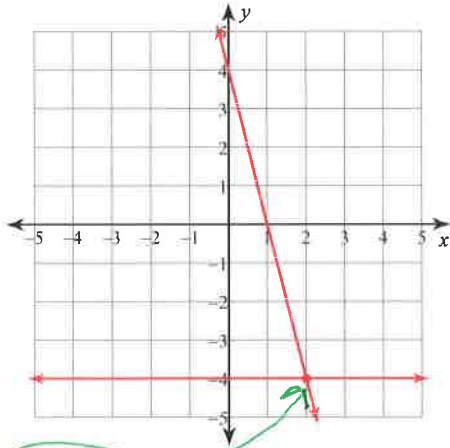


2.1 & 2.6 Practice Test

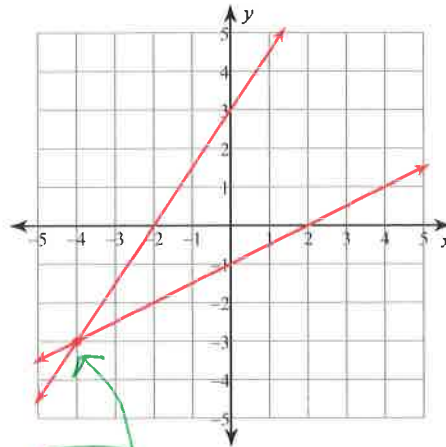
SOLVE EACH SYSTEM BY GRAPHING.

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



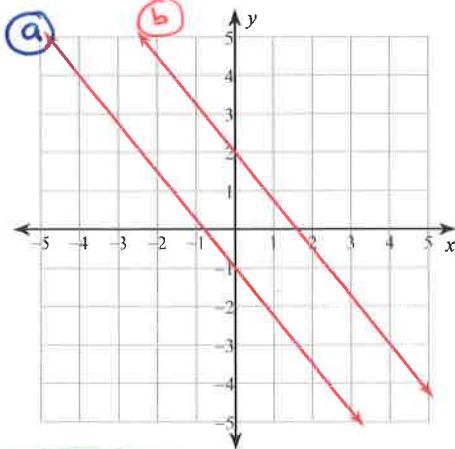
$(2, -4)$

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



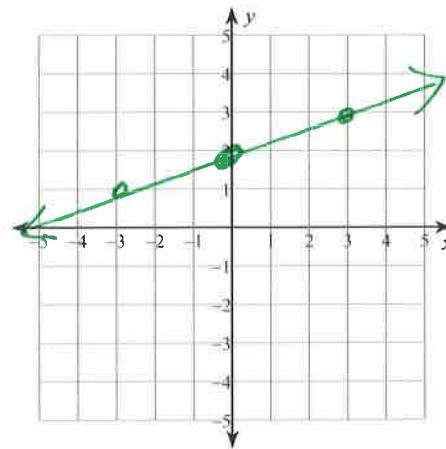
$(-4, -3)$

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



No solution

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



INFINITE SOLUTIONS

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

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

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

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

Solve each system by elimination.

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

NO SOLUTION

Variables drop out and numbers are NOT EQUAL

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

INFINITE SOLUTIONS

Variables drop out and numbers are EQUAL

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

FIND Y:

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

(-1, 2)

$$\begin{array}{r}
 8) \quad \begin{cases} 2x + 5y = -11 \\ 5x + 3y = 20 \end{cases} \times 5 \rightarrow \begin{array}{r} 2x + 5y = -11 \\ 5x + 3y = 20 \\ \hline 10x + 25y = -55 \\ -10x - 6y = -40 \\ \hline 19y = -95 \\ \frac{19}{19} \frac{y}{1} = \frac{-95}{19} \\ \boxed{y = -5}
 \end{array}
 \end{array}$$

FIND X

$$\begin{array}{r}
 5x + 3(-5) = 20 \\
 5x - 15 = 20 \\
 +15 \quad +15 \\
 \hline
 5x = 35 \\
 \frac{5}{5} \frac{x}{1} = \frac{35}{5} \\
 \boxed{x = 7}
 \end{array}$$

(7, -5)

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

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

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

FIND Y

$$\begin{array}{r} 9(-3) + y = -25 \\ -27 + y = -25 \\ +27 \quad \quad +27 \end{array}$$

$$\boxed{y = 2}$$

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

Solve each system by substitution.

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

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

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

$$\begin{array}{r} -12x + 42 = 16 \\ \hline \quad \quad -52 \quad -52 \end{array}$$

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

$$\boxed{x = 3}$$

FIND Y

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

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

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

$$\begin{array}{r} -4x = -24 \\ \hline \quad \quad -4 \quad -4 \end{array}$$

$$\boxed{x = 6}$$

FIND Y

$$\begin{array}{r} 2(6) - 4y = -8 \\ 12 - 4y = -8 \\ \hline \quad \quad -12 \quad -12 \end{array}$$

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

$$\boxed{y = 5}$$

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

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

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

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

$$12x = 24$$

$$\boxed{x = 2}$$

FIND Y

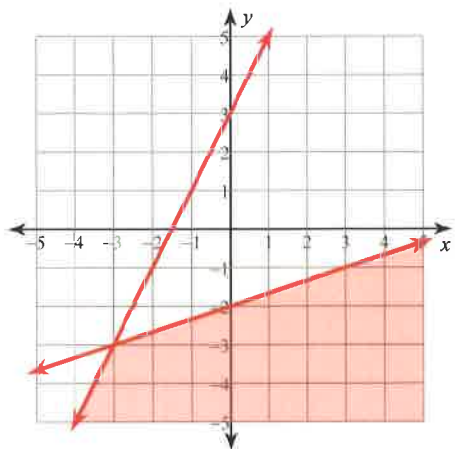
$$y = 7(2) - 10 = 4$$

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

SOLVE EACH SYSTEM OF INEQUALITIES BY GRAPHING.

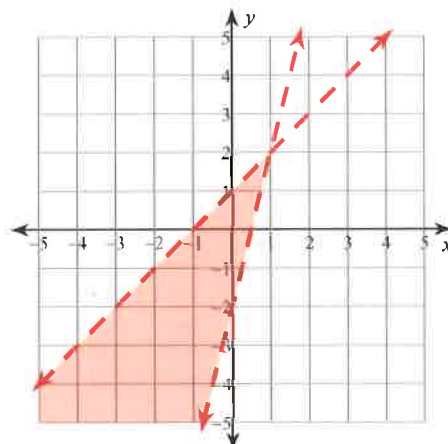
13) $y \leq \frac{1}{3}x - 2$
 $y \leq 2x + 3$

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



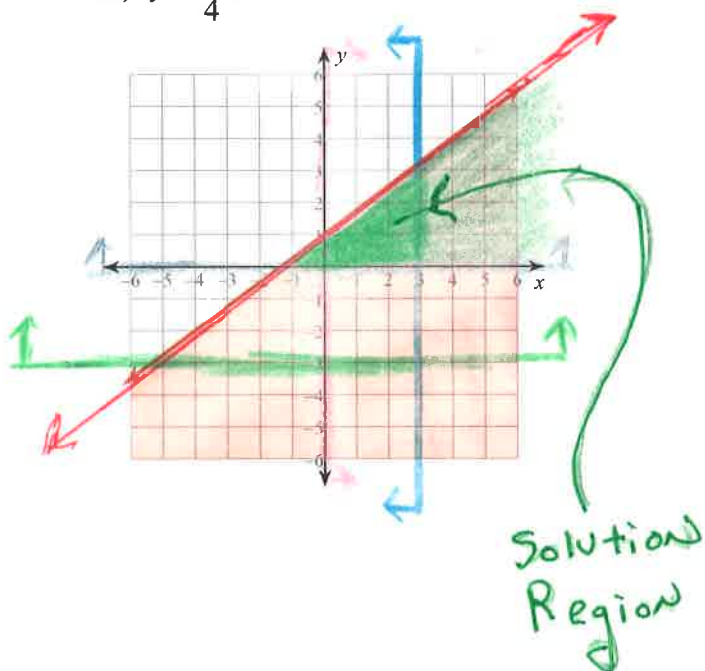
14) $y < x + 1$
 $y > 4x - 2$

DOTTED LINES FOR $<, >$

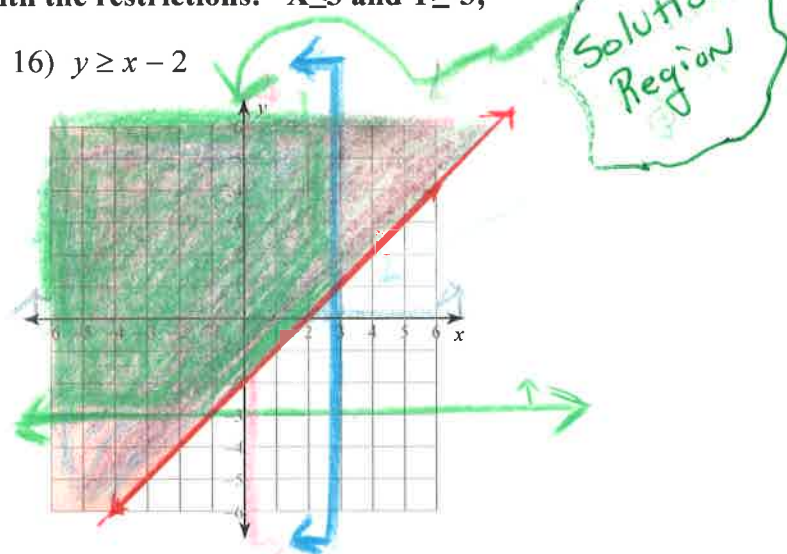


GRAPH EACH SYSTEM OF INEQUALITIES; with the restrictions: $X \leq 3$ and $Y \geq -3$;

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



16) $y \geq x - 2$

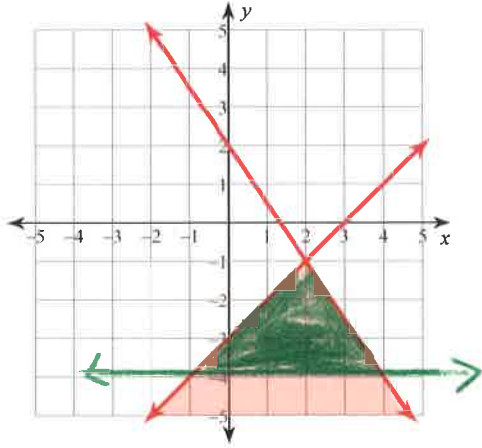


GRAPH and FIND THE VERTICES FOR EACH SYSTEM OF INEQUALITIES.

$$y \geq -4$$

17) $y \leq x - 3$

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



VERTICES

(2, -1)

(-1, -4)

(4, -4)

GRAPH and FIND THE VERTICES FOR EACH SYSTEM OF INEQUALITIES.

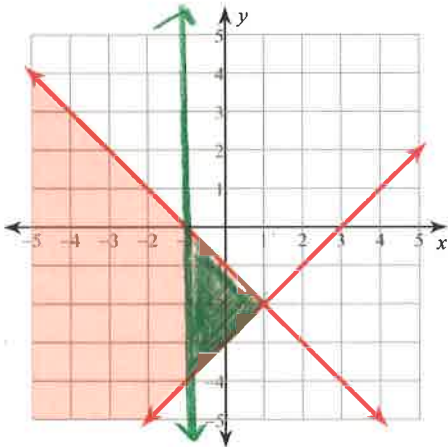
$$x \geq -1$$

18) $y \leq -x - 1$

$$y \geq x - 3$$

19) skip

skip



VERTICES

(-1, 0)

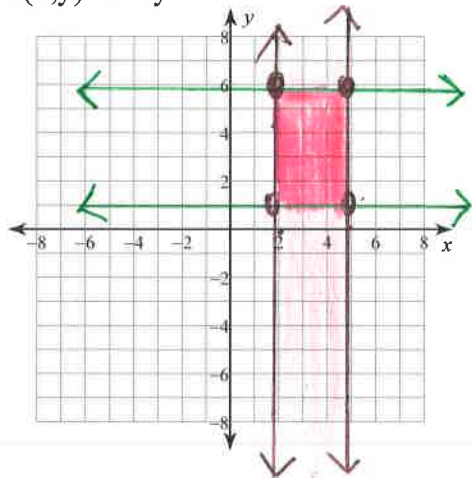
(-1, -4)

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

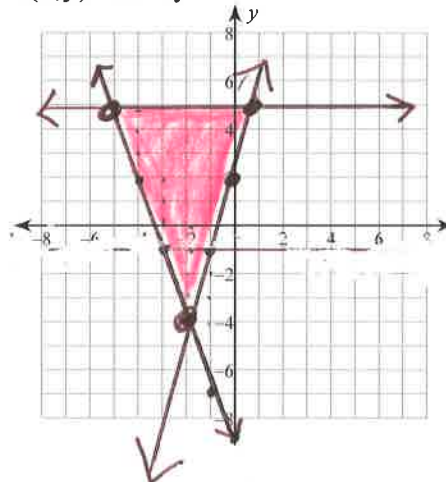
② $(5,1)$
 $f(5,1) = 5 + 4(1) = 9$

③ $(2,6)$
 $f(2,6) = 2 + 4(6) = 26$

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

21) $x \leq 6$
 $y \leq 3x + 2$
 $y \geq -3x - 10$

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



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
 $f(-2,-4) = 2(-2) + 2(-4) = -12$