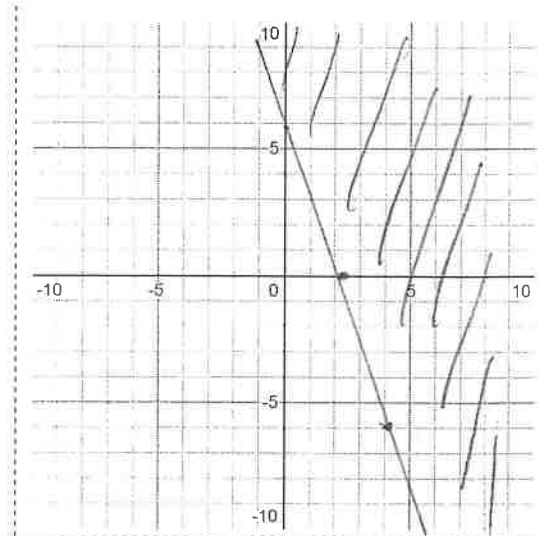


**Section 5.2 – Practice Questions**

Graph the following inequalities on the grid provided.

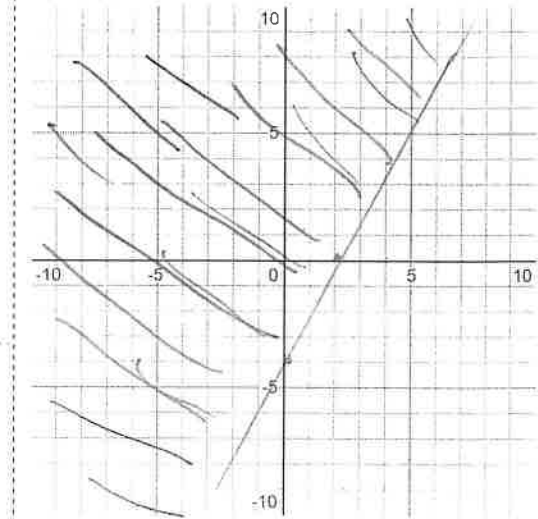
1.  $3x + y \geq 6$

| x | y  |
|---|----|
| 0 | 6  |
| 2 | 0  |
| 4 | -6 |



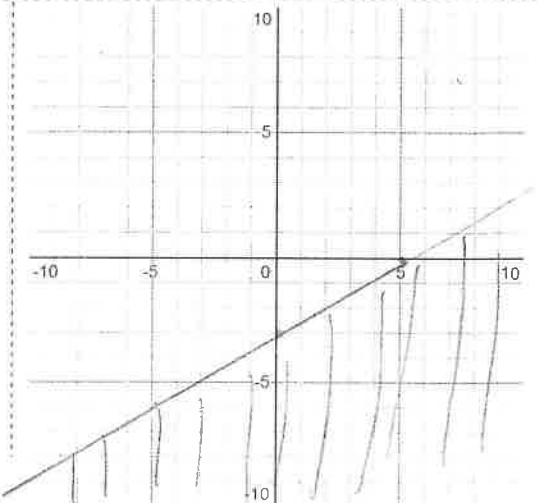
2.  $2x - y < 4$

| x | y  |
|---|----|
| 0 | -4 |
| 2 | 0  |
| 4 | 4  |



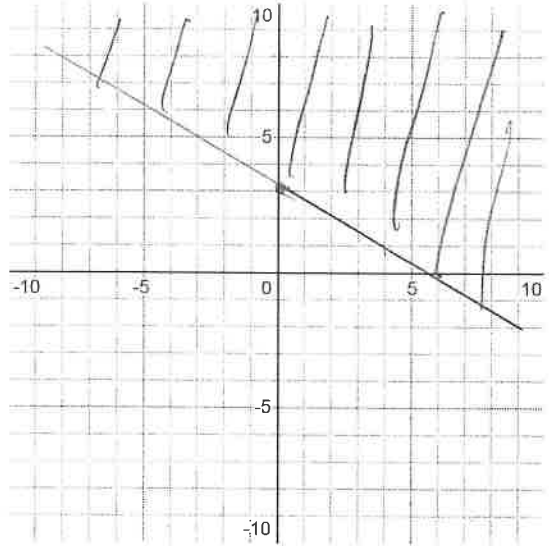
3.  $0.4x - \frac{2}{3}y > 2$

| x  | y  |
|----|----|
| 0  | -3 |
| 5  | 0  |
| -5 | -6 |



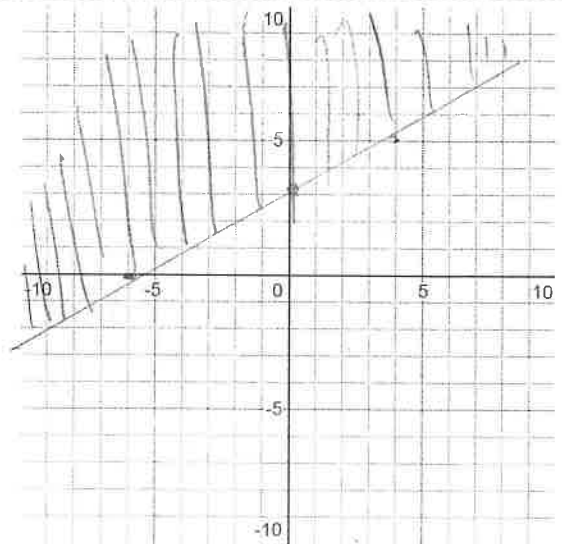
4.  $\frac{1}{3}x + \frac{2}{3}y \geq 2$

| x | y |
|---|---|
| 0 | 3 |
| 6 | 0 |
| 4 | 1 |



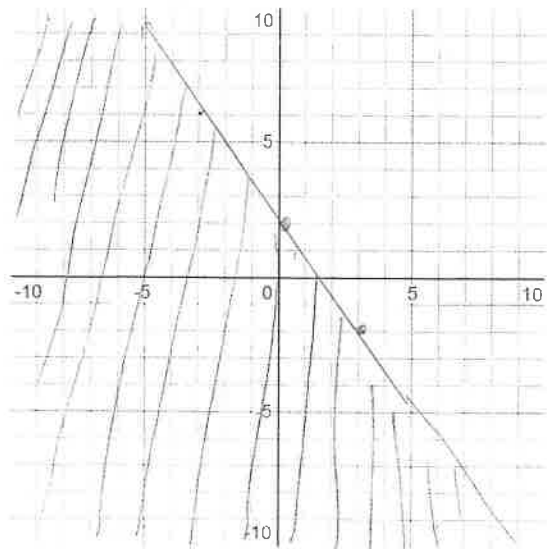
5.  $y \geq \frac{1}{2}x + 3$

| x  | y |
|----|---|
| 0  | 3 |
| 4  | 5 |
| -4 | 1 |



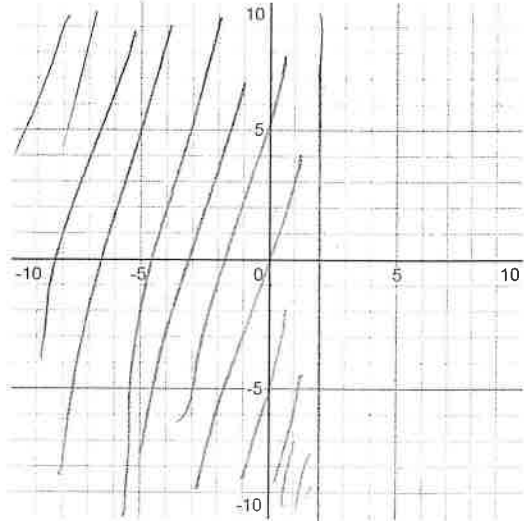
6.  $y < -\frac{4}{3}x + 2$

| x  | y  |
|----|----|
| 0  | 2  |
| 3  | -2 |
| -3 | 6  |



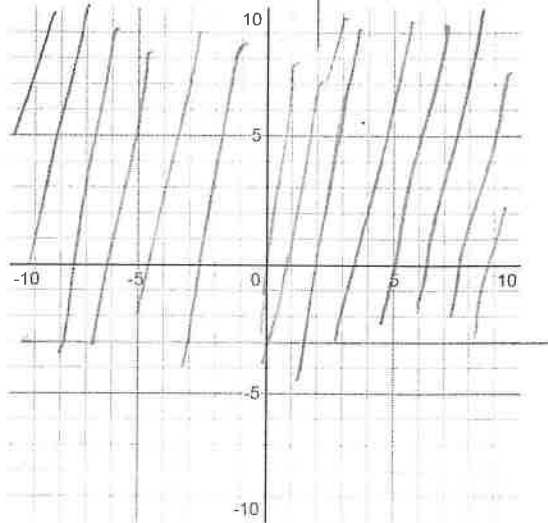
7.  $x < 2$

| x | y |
|---|---|
| 2 | 0 |
| 2 | 5 |
| 2 | 4 |



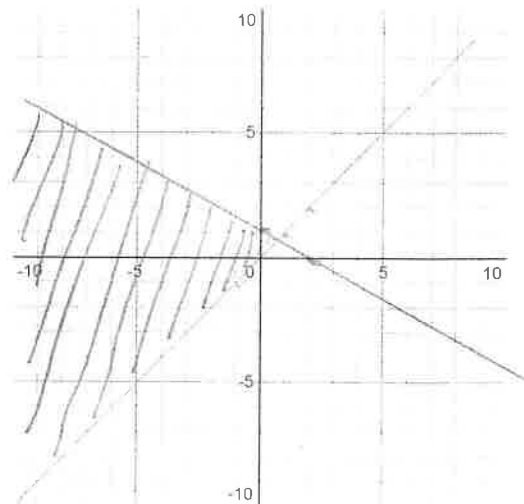
8.  $y > -3$

| x  | y  |
|----|----|
| -5 | -3 |
| 0  | -3 |
| 4  | -3 |

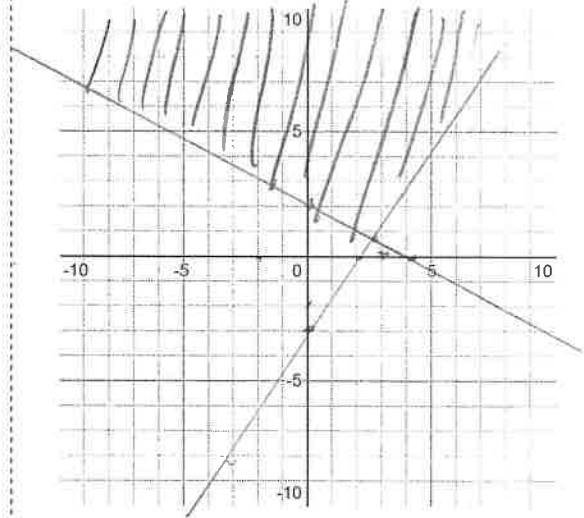


Graph the following inequalities on the grid provided and shade in the solution.

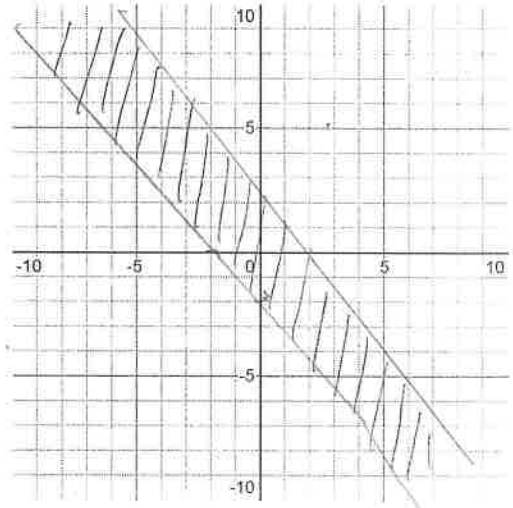
9.  $y \geq x$   
 $2y < -x + 2$



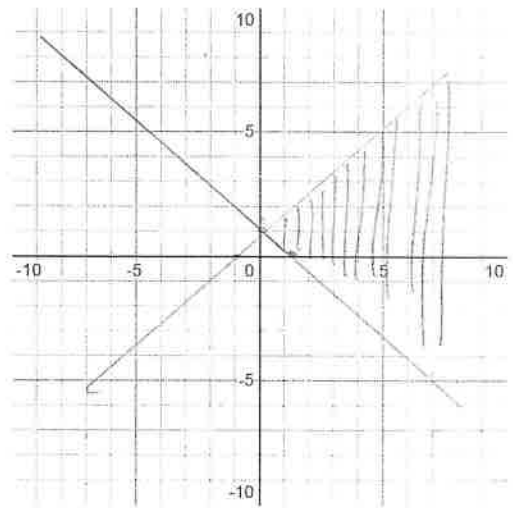
10.  $x + 2y > 4$   
 $3x - 2y \leq 6$



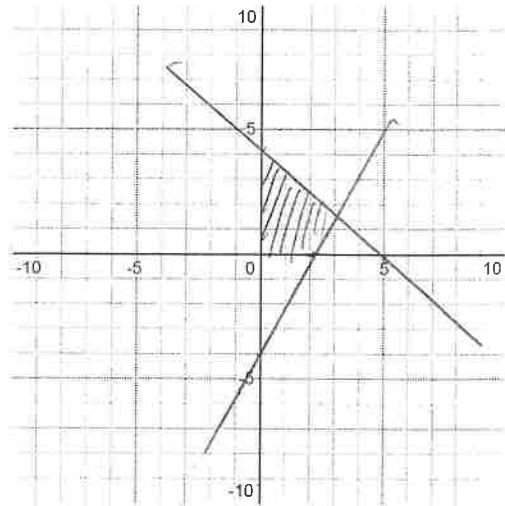
11.  $x + y \leq 2$   
 $x + y \geq -2$



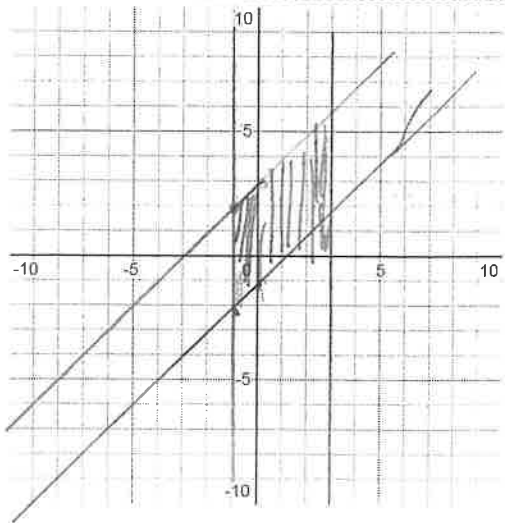
12.  $y \leq x + 1$   
 $y \geq -x + 1$



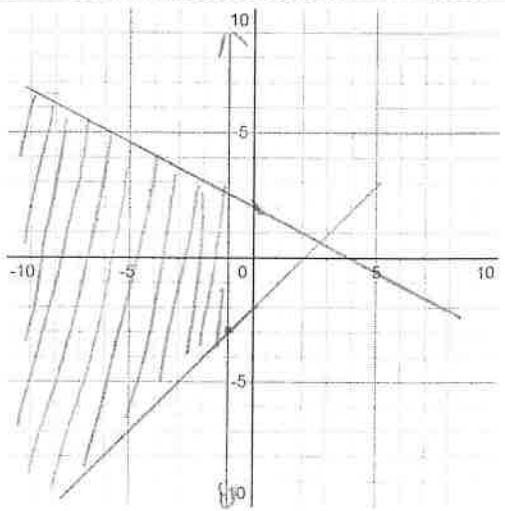
13.  $4x + 5y < 20$   
 $2x - y \leq 4$   
 $x \geq 0$   
 $y \geq 0$



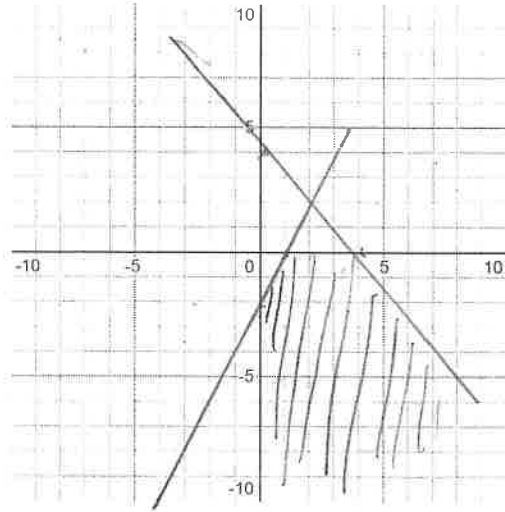
14.  $x - y \leq 1$   
 $x - y \geq -3$   
 $-1 \leq x \leq 3$



15.  $x - y \leq 2$   
 $x + 2y \leq 4$   
 $x \leq -1$



16.  $x + y \leq 4$   
 $2x - y \geq 2$   
 $x \geq 0$   
 $y \geq 0$



Write a system of linear inequalities that forms the given graph

17.

For AB  $y \leq 3$

For BC  $m = \frac{3-1}{3-1} = 2$

$y = mx + b$

$-1 = 2(1) + b$

$b = -3$

$y \geq 2x - 3$

For AC

$m = \frac{3-1}{3-1} = 1$

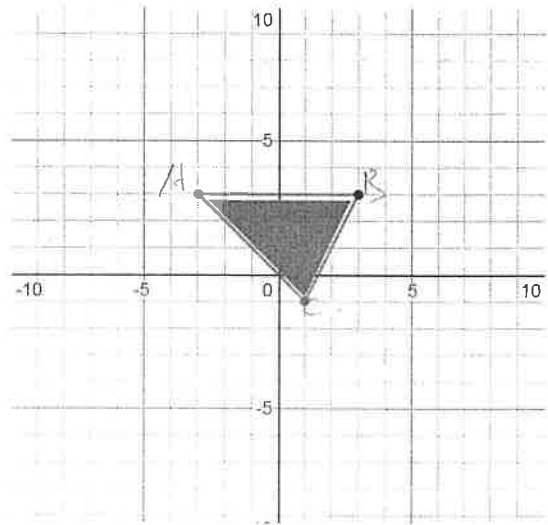
$y = mx + b$

$-1 = 1(1) + b$

$b = 0$

$y \geq -x$

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



18.

For BC

$y \geq 0$

For AB

$m = \frac{3-1}{3-1} = 1$

$3 = 1(3) + b$

$b = 0$

$y \leq x + 2$

For AC

$m = \frac{3-1}{3-1} = 1$

$= -1$

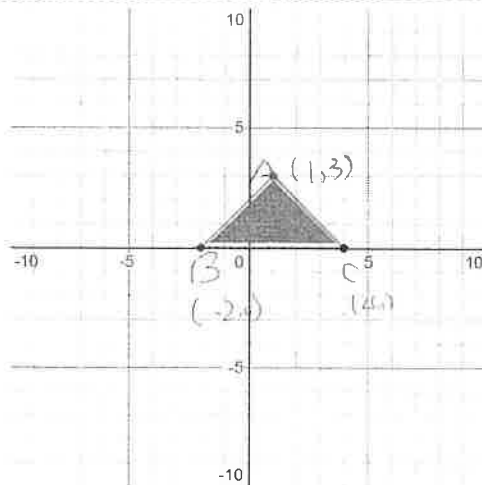
$y = mx + b$

$3 = 1(3) + b$

$b = 4$

$y \leq -x + 4$

$y \geq 0, y \leq x + 2$   
 $y \leq -x + 4$



19.

For AB and DC

$$-2 \leq y \leq 2$$

For BC

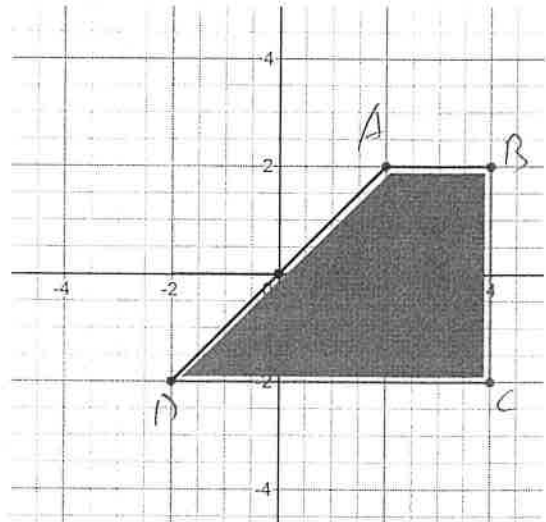
$$x \leq 4$$

For AD

$$m = 1$$

$$y \leq x$$

$$\begin{cases} -2 \leq y \leq 2 \\ x \leq 4 \\ y \leq x \end{cases}$$



20.

$$y \geq 0$$

$$m = 1$$

For AB

$$m = -1$$

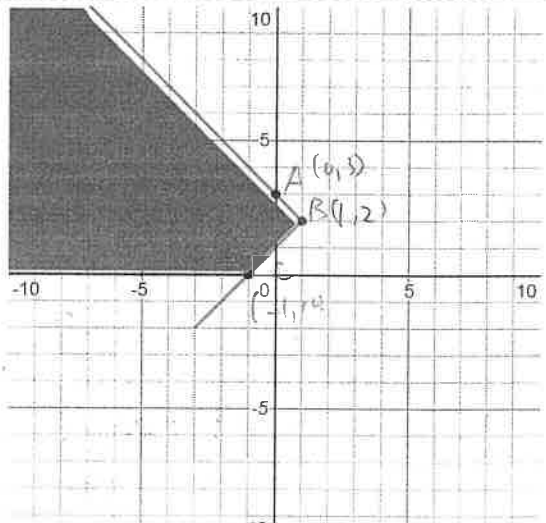
$$z = (x + 1) + b$$

$$b = 3$$

$$y \leq -x + 3$$

For BC

$$\begin{cases} y \geq 0 \\ y \leq -x + 3 \\ y \geq x + 1 \end{cases}$$



21.

AB and DC

$$0 \leq y \leq 5$$

For AE and BC

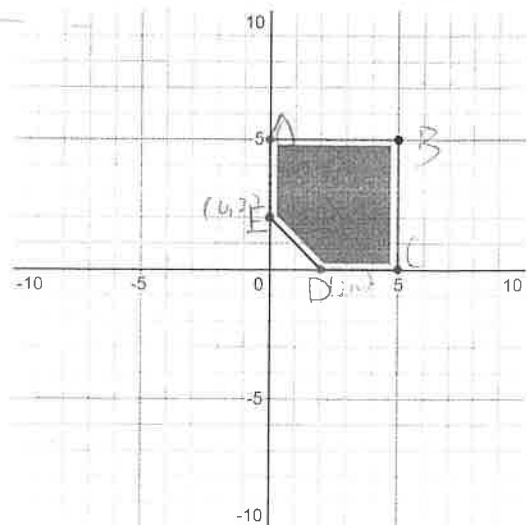
$$0 \leq x \leq 5$$

For ED

$$m = -1$$

$$y \geq -x + 2$$

$$\begin{cases} 0 \leq y \leq 5 \\ 0 \leq x \leq 5 \\ y \geq -x + 2 \end{cases}$$



22.  $y \geq \frac{3}{4}x + \frac{3}{2}$

For AB

$y \leq 5$

For AE BC

$-5 \leq x \leq -2$

For CD

$m = \frac{3}{4}$

$3 = \frac{3}{4}x + b$

$b = \frac{3}{2}$

For ED

$m = -1$

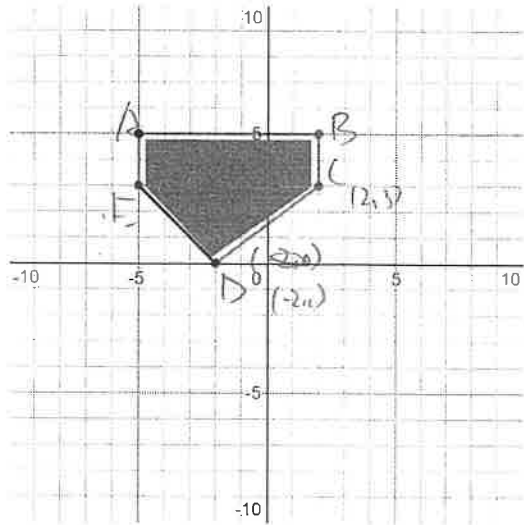
$y \geq -x - 2$

$$y \leq 5$$

$$-5 \leq x \leq -2$$

$$y \geq -x - 2$$

$$y \geq \frac{3}{4}x + \frac{3}{2}$$



23.

For BC

~~$y \geq x$~~

$y \geq 0$

For AB

$m = -\frac{1}{3}$

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

For AC

$m = -2$

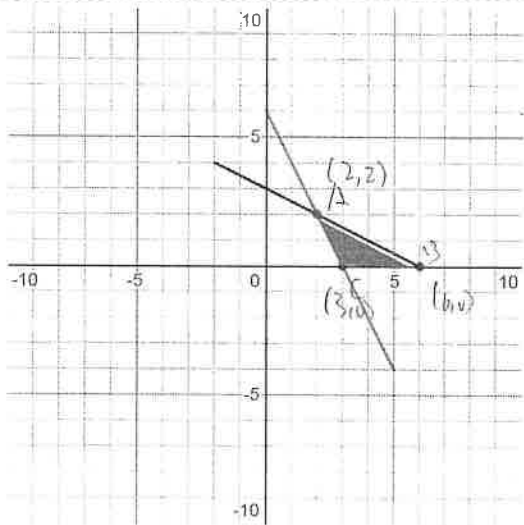
$b = 6$

$y \geq -2x + 6$

$$y \geq 0$$

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

$$y \geq -2x + 6$$



24.

$y = 0$

BC  $\rightarrow y \geq 0$

AB  $\rightarrow y \geq -2x + 4$

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

