

Systems of Linear Inequalities

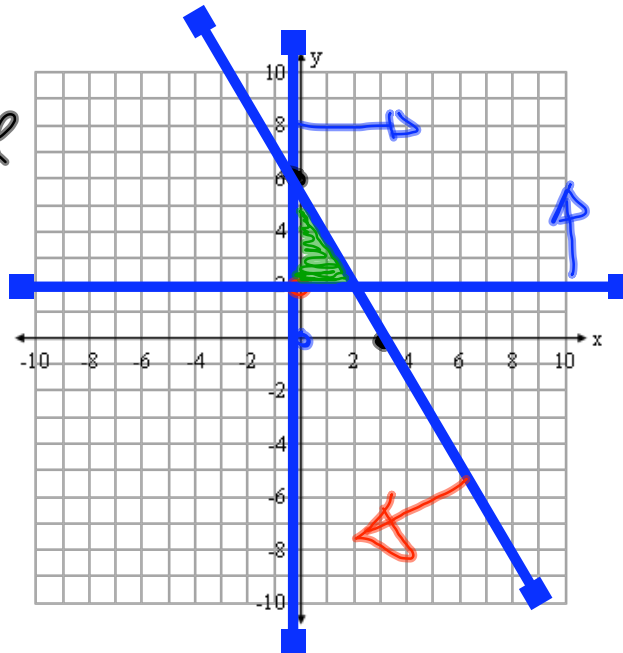
A system of linear inequalities consists of 2 or more inequalities. The solution is the region where the shaded regions of all of the graphs overlap.

$x \geq 0$, $y \geq 2$,

$2x + y \leq 6$

$x = 3$
 $y = 6$

vertical
 horizontal



$$x \geq 1, \quad y \leq 5, \quad 4y - 3x \geq 5$$

A footwear manufacturer makes boots and shoes. The length of time each pair requires on the cutting and stitching machine is shown in the chart.

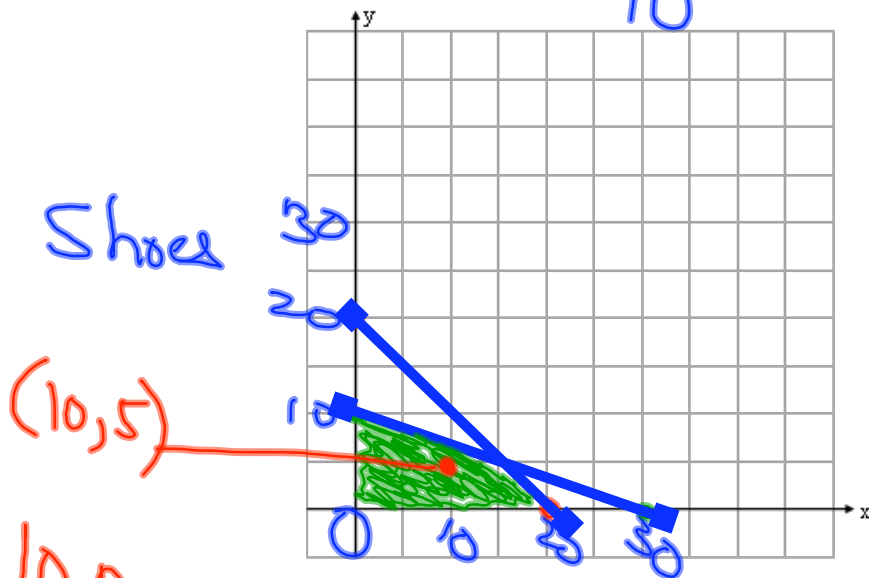
Type of footwear	Time on cutting machine (min)	Time on stitching machine (min)
x # Boots	3 x	2 x
y # Shoes	3 y	6 y

Draw a graph to show the number of pairs of boots and shoes that could be made in ~~1 hour~~ or less.

60 min.

$$3x + 3y \leq 60 \quad \begin{matrix} x=20 \\ y=20 \end{matrix} \quad x \geq 0$$

$$2x + 6y \leq 60 \quad \begin{matrix} 30 \\ 10 \end{matrix} \quad y \geq 0$$



10 pairs of boots
5 pairs of shoes.

Assignment:

Pg.354 1, 3, 6-8