

2. Solve the following system of linear inequalities:

$$3x + 2y \geq 24 ; 3x + y \leq 15 ; x \geq 4$$

Solⁿ

Draw the graphs of all the inequalities on a single graph and check if there is a common region bounded by all of them. If yes then that region is the solⁿ set. If not, then there is no solⁿ of the system.

(1) for inequality $3x + 2y \geq 24$ $\Rightarrow x=0 ; y=12$
 $\Rightarrow y=0 ; y=8$
 origin test $(0,0) \Rightarrow 3(0) + 2(0) = 0 < 24$

NOT satisfy the inequality
 That means origin doesnot lie in region subtended by this inequality.

(2) for inequality $3x + y \leq 15$ $\Rightarrow x=0 ; y=15$
 $\Rightarrow y=0 ; x=5$

origin test $(0,0) \Rightarrow 3(0) + 0 = 0 \leq 15$
 Satisfies the inequality.

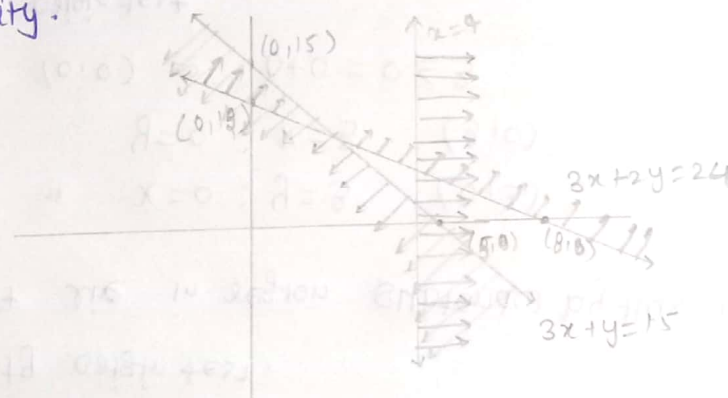
That means origin lie in region. Subtended by this inequality.

(3) for inequality $x \geq 4$

origin test $(0,0) \Rightarrow 0 \leq 4$

NOT Satisfy the inequality

That means origin doesnot lie in region subtended by this inequality.



by figure, there is no common solution region for given inequalities.

Hence, the system has no solution.