

1. SHOW that the solution set is empty for the system of inequations

$$2x - y \leq 1$$

$$4x - 2y \geq 9$$

Solⁿ

for; $2x - y \leq 1 \Rightarrow x=0; y=-1; (0, -1)$
 $y=0; x=\frac{1}{2}; (\frac{1}{2}, 0)$

origin test $(0, 0)$

$$\Rightarrow 2(0) - 0 = 0 \leq 1$$

inequality satisfies the origin test.

That means origin does exist or lie in region subtended by this inequality

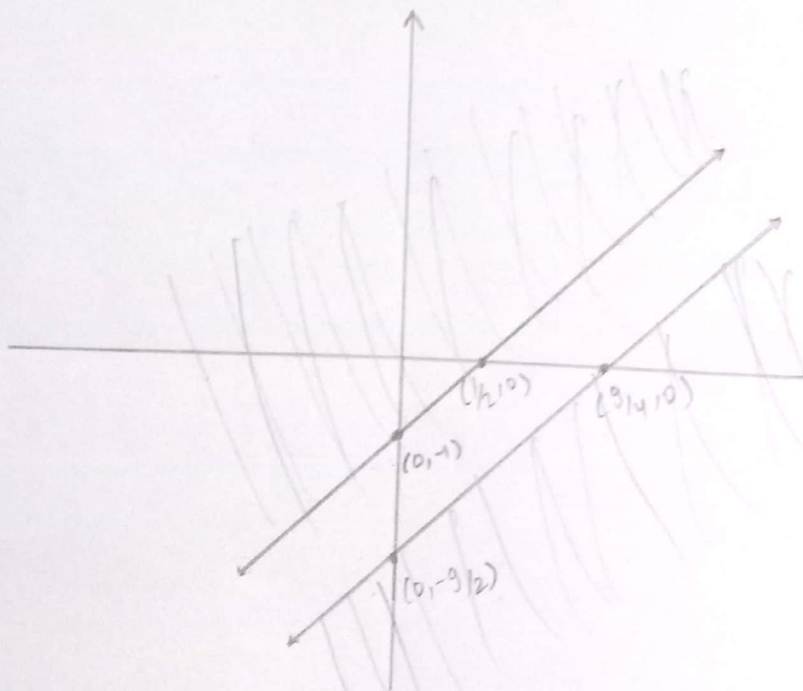
for $4x - 2y \geq 9 \Rightarrow x=0; y=-\frac{9}{2} (0, -\frac{9}{2})$
 $y=0; x=\frac{9}{4} (\frac{9}{4}, 0)$

origin test $(0, 0)$

$$4(0) - 2(0) = 0 \not\geq 9$$

inequality doesnot satisfy the origin test.

That means origin doesnot lie in region subtended by inequality.



NO Common region