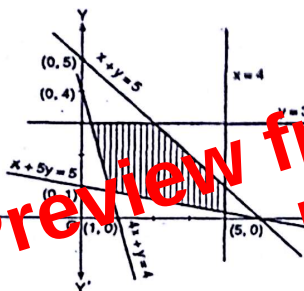


Graphs of Simultaneous Inequation:

In equations: Draw the graph of

$$x + y \leq 5, \quad 4x + y \geq 4, \quad x + 5y \geq 5 \text{ and } x \leq 4, y \leq 3$$

Hence, the shaded region given in figure represents the solution set of the given linear inequations.



Preview from Notesale.
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9. Application of linear Inequations

A **compound inequality** is two simple inequalities joined by "and" or "or".

Solving an "And" Compound Inequality:		Solving an "Or" Compound Inequality:	
$3x - 9 \leq 12$ and $3x - 9 \geq -3$		$2x + 3 < 7$ or $5x + 5 > 25$	
Also written ... $[3x - 9 \leq 12] \wedge [3x - 9 \geq -3]$		Also written ... $[2x + 3 < 7] \vee [5x + 5 > 25]$	
Or written ... $-3 \leq 3x - 9 \leq 12$ $6 \leq 3x \leq 21$ $2 \leq x \leq 7$	The common statement is sandwiched between the two inequalities. Solve as a single unit or solve each side separately.	$2x + 3 < 7$ $2x < 4$ $x < 2$	Solve the first inequality
		$5x + 5 > 25$ $5x > 20$ $x > 4$	Solve the second inequality
The solution is $2 \leq x \leq 7$, which can be read $x \geq 2$ and $x \leq 7$. Interval notation: $[2, 7]$		The solution is $x < 2$ or $x > 4$. Interval notation: $(-\infty, 2) \cup (4, \infty)$	