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Q1)

type 1 => x number of hats

type 2 => y number of hats

objective function

max $z = 8x + 5y$

constraints

$3x + y \leq 450$

$x \leq 100$

$y \leq 300$

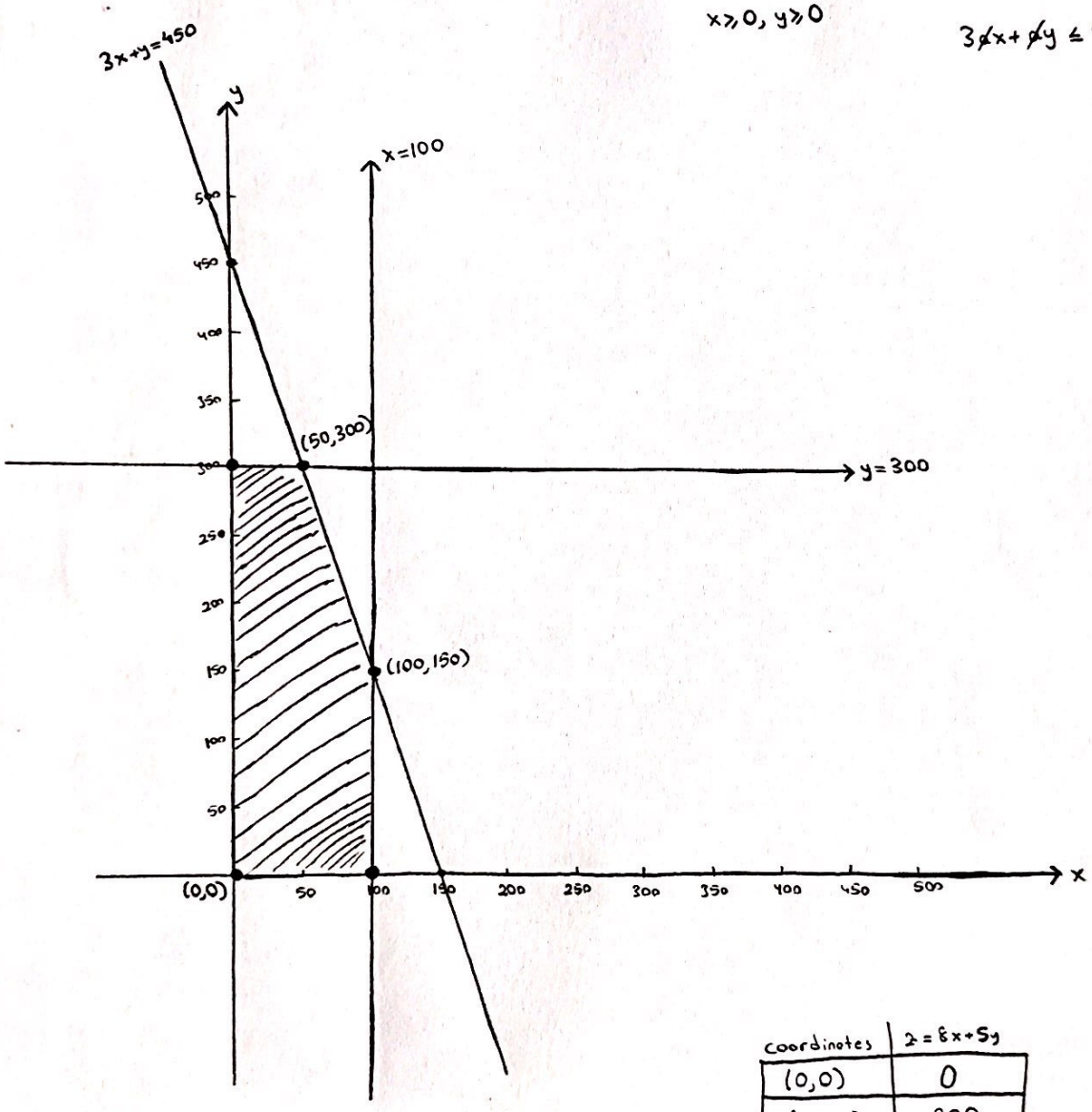
$x \geq 0, y \geq 0$

type 1 → 30 hours

type 2 → a hours

max available hours => 450a hours

$3\not{a}x + \not{a}y \leq 450\not{a}$



coordinates	$z = 8x + 5y$	
(0,0)	0	
(100,0)	800	
(0,300)	1500	
(50,300)	1900	(max profit)
(100,150)	1550	

to maximize profit, produce type1 => 50

type2 => 300