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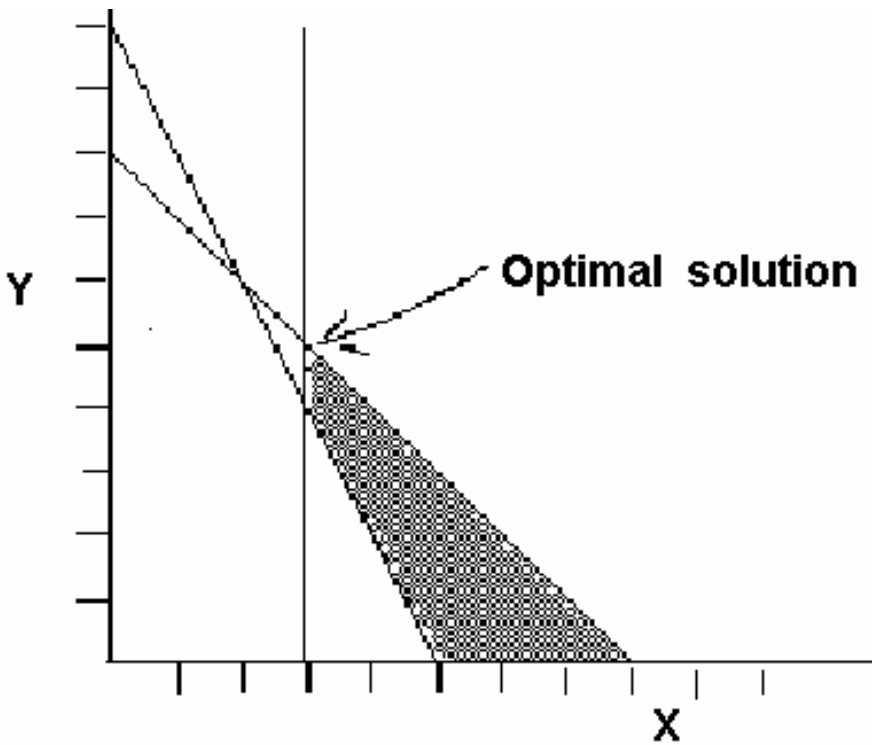

Consider the following LP and its graphical solution:

Maximize	$x + 2y$	
subject to	$x + y \le 8$	(#1)
	$2x + y \ge 10$	(#2)
	$x \ge 3,$	(#3)
	$x \ge 0,\ y \ge 0$	

In equation form:

$-z+x+2y = 0$		
$x+ y+ S_1 = 8$		(#1)
$2x+ y - S_2 = 10$		(#2)
$x - S_3 = 3$		(#3)

$x \ge 0,\ y \ge 0,\ S_1 \ge 0,\ S_2 \ge 0,\ S_3 \ge 0$

(a.) Which constraints are "tight" at the optimal solution? _____ Which are "slack"?_____

(b.) How many basic variables should this LP have (including –z)? _____

(c.) Which variables (including slack & surplus) are basic at the optimal solution?_____

(d.) What is the optimal solution? X=___,Y=___ & the optimal objective value?_____

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