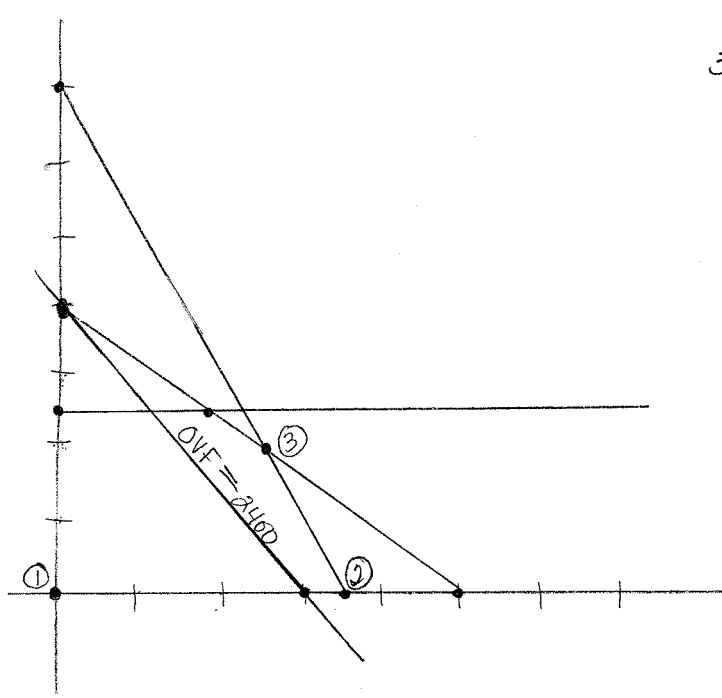


a) Max $40X_1 + 30X_2$ s.t. $\frac{2}{5}X_1 + \frac{1}{2}X_2 \leq 20$
 $\frac{1}{5}X_2 \leq 5$
 $\frac{3}{5}X_1 + \frac{3}{10}X_2 \leq 21$
 $X_1, X_2 \geq 0$



$(X_1, X_2, S_1, S_2, S_3)$
 Basic Feasible Solns

- Tableau 1: $(0, 0, 20, 5, 21)$
- Tableau 2: $(35, 0, 6, 5, 0)$
- Tableau 3: $(25, 20, 0, 1, 0)$

My initial tableau (1) starts @ The origin. Then after the 1st iteration, my new extreme point is $(35, 0)$ which is (2) on my graph. After my 2nd iteration, my extreme point is $(25, 20)$ which is (3) on my graph - this is my optimal soln. I know this b/c of my graph and b/c all values in the last row of tab 3 are 0 and negative.

Max $40X_1 + 30X_2 + 0S_1 + 0S_2 + 0S_3$
 s.t. $\frac{2}{5}X_1 + \frac{1}{2}X_2 + S_1 = 20$
 $\frac{1}{5}X_2 + S_2 = 5$
 $\frac{3}{5}X_1 + \frac{3}{10}X_2 + S_3 = 21$

①

	X_1	X_2	S_1	S_2	S_3		
	40	30	0	0	0		
S_1	0	$\frac{2}{5}$	$\frac{1}{2}$	1	0	20	50
S_2	0	0	$\frac{1}{5}$	0	1	5	0
S_3	0	$\frac{3}{5}$	$\frac{3}{10}$	0	0	21	35
	0	0	0	0	0		
	40	30	0	0	0		

③

	X_1	X_2	S_1	S_2	S_3		
	40	30	0	0	0		
X_2	30	0	1	$\frac{10}{3}$	0	$-\frac{20}{9}$	20
S_2	0	0	0	$-\frac{2}{3}$	1	$\frac{4}{9}$	1
X_1	40	1	0	$-\frac{5}{3}$	0	$\frac{25}{9}$	25
	40	30	$33\frac{1}{3}$	0	44.4		16000
	0	0	-	-	-		

②

	X_1	X_2	S_1	S_2	S_3		
	40	30	0	0	0		
S_1	0	$\frac{3}{10}$	1	0	$-\frac{2}{3}$	6	20
S_2	0	0	$\frac{1}{5}$	0	1	5	25
X_1	40	1	$\frac{1}{2}$	0	$\frac{5}{3}$	35	70
	40	20	0	0	$\frac{200}{3}$		1400
	0	10	0	0	$-\frac{200}{3}$		

Optimal Soln:
 $(25, 20, 0, 1, 0)$
 $40(25) + 30(20) = 16000$