

8. Apply one full step of the simplex algorithm. Circle your pivot, write out your row operations, and write down the next tableau. Explain why that next tableau is or is not final. (This is the table for #4 resulting from the three decisions: (1) Leafy is good, but limited by the demand for Leafy, (2) Soupy is good, but limited by the remaining supply of vegetable stock, (3) hungry Leafy customers are actually ok, as this decreases hungry Soupy customers)

	Meaty	Leafy	Soupy	Chicken	Beef	Veg.	Hungry M	Hungry L	Hungry S	Profit	RHS
C	1	0	0	1	0	0	0	0	-3	0	700
B	6	0	0	0	1	0	0	0	-2	0	5000
P	0	0	1	0	0	0	0	0	1	0	900
HM	1	0	0	0	0	0	1	0	0	0	1200
L	1/8	1	0	0	0	1/8	0	0	-1/4	0	1607/4
HL	-1/8	0	0	0	0	-1/8	0	1	1/4	0	793/4
Profit	-415/4	0	0	0	0	65/4	0	0	235/2	1	374455/2

↑
Pivot column

Compare ratios:
 $700/1 = 700$ ← smallest
 $5000/6 \approx 833$
 $1200/1 = 1200$
 $1607/4 / \frac{1}{8} = 3214$

$$\frac{374455}{2} + \frac{415}{4}(700)$$

	M	L	S	C	B	V	HM	HL	HS	P	RHS
C	1	0	0	1	0	0	0	0	-3	0	700
$R_2 - 6R_1$	B	0	0	-6	1	0	0	0	16	0	800
P	0	0	1	0	0	0	0	0	1	0	900
$R_4 - R_1$	HM	0	0	-1	0	0	0	0	3	0	500
$R_5 - \frac{1}{8}R_1$	L	0	1	-1/8	0	1/8	0	0	1/8	0	1257/4
$R_6 + \frac{1}{8}R_1$	HL	0	0	1/8	0	-1/8	0	1	-1/8	0	1143/4
$R_7 + \frac{415}{4}R_1$	Profit	0	0	415/4	0	65/4	0	0	-775/4	1	519705/2

Is this a final tableau? Why or why not?

This is NOT a final tableau. There is still a negative number in the bottom row, so there is still some improvement that can be made.