

AIM-ZA ALAS 2018  
Candy Mix Linear Program  
Simplex Method Tableaux

From <https://www.zweigmedia.com/RealWorld/simplex.html>

Input:

Maximize  $p = 2x + (9/4)y$  subject to  
 $(1/2)x + (1/3)y \leq 130$   
 $(1/2)x + (2/3)y \leq 170$

Output (annotated):

Tableau #1

x	y	s1	s2	p	
1/2	1/3	1	0	0	130
1/2	2/3	0	1	0	170
-2	-9/4	0	0	1	0

Solution: (0, 0, 130, 170, 0)

Entering variable: y, due to -9/4 max negative bottom row  
 Leaving variable: s2, due to  $170/(2/3)$  a minimum  
 (versus  $130/(1/3)$ )  
 Do necessary row operations.

Tableau #2

x	y	s1	s2	p	
1/4	0	1	-1/2	0	45
3/4	1	0	3/2	0	255
-5/16	0	0	27/8	1	2295/4

Solution: (0, 255, 130, 0, 573.75)

Entering variable: x, due to -5/16  
 Leaving variable: s1, due to  $45/(1/4)=90$  a minimum  
 (versus  $225/(3/4) = 300$ )  
 Do necessary row operations.

Tableau #3

x	y	s1	s2	p	
1	0	4	-2	0	180
0	1	-3	3	0	120
0	0	5/4	11/4	1	630

Solution: (180, 120, 0, 0, 630)