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- **A complete example on simplex method in tabular form**

  ➢ Consider the LP
  $$\max \quad Z = 3x_1 + 2x_2 + 5x_3$$
  $$\text{s.t.} \quad x_1 + 2x_2 + x_3 \leq 430$$
  $$3x_1 + \qquad + 2x_3 \leq 460$$
  $$x_1 + 4x_2 \qquad \leq 420$$
  $$x_1 \geq 0, x_2 \geq 0, x_3 \geq 0$$

  ➢ Standard form
  $$\max \quad Z = 3x_1 + 2x_2 + 5x_3$$
  $$\text{s.t.} \quad x_1 + 2x_2 + x_3 + S_1 \qquad = 430$$
  $$3x_1 + \qquad + 2x_3 \qquad + S_2 \qquad = 460$$
  $$x_1 + 4x_2 \qquad + S_3 = 420$$
  $$x_1 \geq 0, x_2 \geq 0, x_3 \geq 0$$

  ➢ All constraints are "$\leq$" and RHS > 0. Then, starting solution is O.

	Z	x_1	x_2	x_3	S_1	S_2	S_3	RHS	Ratio
Z	1	-3	-2	-5	0	0	0	0	--
S_1	0	1	2	1	1	0	0	430	430
S_2	0	3	0	2	0	1	0	460	230
S_3	0	1	4	0	0	0	1	420	∞

	Z	x_1	x_2	x_3	S_1	S_2	S_3	RHS	Ratio
Z	1	4.5	-2	0	0	2.5	0	1150	--
S_1	0	-0.5	2	0	1	-0.5	0	200	100
x_3	0	1.5	0	1	0	0.5	0	230	∞
S_3	0	1	4	0	0	0	1	420	105

	Z	x_1	x_2	x_3	S_1	S_2	S_3	RHS
Z	1	4	0	0	1	2	0	1350
x_2	0	-0.3	1	0	1	-0.3	0	100
x_3	0	1.5	0	1	0	0.5	0	230
S_3	0	2	0	0	-2	1	1	20

  ➢ Optimal solution is $x_1^* = 0$, $x_2^* = 100$, $x_3^* = 230$ & $Z^* = 1350$.