- **A complete example of the simplex method in tabular form**

  ➢ Consider the LP

  $$\max\ Z = 3x_1 + 2x_2 + 5x_3$$

  $$\text{s.t.}\qquad x_1 + 2x_2 + x_3 \le 430$$
  $$3x_1 +\ \ \ \ + 2x_3 \le 460$$
  $$x_1 + 4x_2 \ \ \ \ \le 420$$
  $$x_1 \ge 0, x_2 \ge 0, x_3 \ge 0$$

  ➢ Standard form

  $$\max\ Z = 3x_1 + 2x_2 + 5x_3$$

  $$\text{s.t.}\qquad x_1 + 2x_2 + x_3 + S_1 \ \ \ \ \ \ \ \ = 430$$
  $$3x_1 +\ \ \ \ + 2x_3 \ \ \ + S_2 \ \ \ \ = 460$$
  $$x_1 + 4x_2 \ \ \ \ \ \ \ \ \ \ \ \ + S_3 = 420$$
  $$x_1 \ge 0, x_2 \ge 0, x_3 \ge 0$$

  ➢ All constraints are "≤"and RHS > 0. Then, the starting solution is O.

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

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

	x_1	x_2	x_3	S_1	S_2	S_3	RHS
Z	4	0	0	1	2	0	1350
x_2	-0.25	1	0	0.5	-0.25	0	100
x_3	1.5	0	1	0	0.5	0	230
S_3	2	0	0	-2	1	1	20

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