

Simplex Method Intermediate Tableaus

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Initial Problem

Maximize:

$$Z = 3.0x_1 + 1.0x_2$$

Subject to:

$$2.0x_1 + 1.0x_2 \leq 8.0$$

$$2.0x_1 + 3.0x_2 \leq 12.0$$

Canonical Form:

$$2.0x_1 + 1.0x_2 + s_1 = 8.0$$

$$2.0x_1 + 3.0x_2 + s_2 = 12.0$$

Entering variable: x_1 , Leaving variable: Basic var from row 1

Table 1: Simplex Tableau after iteration 0

Basic	x_1	x_2	s_1	s_2	RHS
x_2	2.00	1.00	1.00	0.00	8.00
s_2	2.00	3.00	0.00	1.00	12.00
Z	-3.00	-1.00	0.00	0.00	0.00

Optimal solution reached.

Table 2: Simplex Tableau after iteration 1

Basic	x_1	x_2	s_1	s_2	RHS
x_1	1.00	0.50	0.50	0.00	4.00
s_2	0.00	2.00	-1.00	1.00	4.00
Z	0.00	0.50	1.50	0.00	12.00

Optimal solution: $x_1 = 4.00$, $x_2 = 0.00$ **Optimal value (Simplex):** -12.00

Optimal value (ORTools): 12.00