Instituto Tecnológico de Costa Rica

Operations Research - Semester II

Knapsack Problem

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asdasd

Maximize

$$Z = 3.00x_1 + 5.00x_2$$

Subject to

$$1.00x_1 + 0.00x_2 \leq 4.00$$
$$0.00x_1 + 2.00x_2 \leq 12.00$$
$$3.00x_1 + 2.00x_2 \leq 18.00$$

Simplex Table

Z	x_1	x_2	s_0	s_1	s_2	b
1.00	-3.00	-5.00	0.00	0.00	0.00	0.00
0.00	1.00	0.00	1.00	0.00	0.00	4.00
0.00	0.00	2.00	0.00	1.00	0.00	12.00
0.00	3.00	2.00	0.00	0.00	1.00	18.00

Results

Z	x_1	x_2	s_0	s_1	s_2	b
1.00	0.00	0.00	0.00	1.50	1.00	36.00
0.00	0.00	0.00	1.00	0.33	-0.33	2.00
0.00	0.00	1.00	0.00	0.50	0.00	6.00
0.00	1.00	0.00	0.00	-0.33	0.33	2.00

Objective Value

$Z = 36.00$

Variables

$x_1 = 2.00$
$x_2 = 6.00$

Slack or Surplus

$s_1 = 2.00$
$s_2 = 0.00$
$s_3 = 0.00$