

Interpretation of Computer Output (Notes)

LINEAR PROGRAMMING PROBLEM

MAX $5X_1 + 7X_2$

S.T.

- 1) $1X_1 < 6$
- 2) $2X_1 + 3X_2 < 19$
- 3) $1X_1 + 1X_2 < 8$

OPTIMAL SOLUTION

Objective Function Value = 46.000

How much the obj. fctn. coefficient would have to increase before that variable's value would be positive in the optimal solution.

| Variable | Value | Reduced Costs |
|----------|-------|---------------|
| X1 | 5.000 | 0.000 |
| X2 | 3.000 | 0.000 |

| Constraint | Slack/Surplus | Dual Prices |
|------------|---------------|-------------|
| 1 | 1.000 | 0.000 |
| 2 | 0.000 | 2.000 |
| 3 | 0.000 | 1.000 |

The increase in the value of the optimal solution per unit increase in the RHS of the constraint

OBJECTIVE COEFFICIENT RANGES

| Variable | Lower Limit | Current Value | Upper Limit |
|----------|-------------|---------------|-------------|
| X1 | 4.667 | 5.000 | 7.000 |
| X2 | 5.000 | 7.000 | 7.500 |

Range of values over which the current solution will remain optimal if changes are made to one coefficient at a time.

RIGHT HAND SIDE RANGES

| Constraint | Lower Limit | Current Value | Upper Limit |
|------------|-------------|---------------|----------------|
| 1 | 5.000 | 6.000 | No Upper Limit |
| 2 | 18.000 | 19.000 | 24.000 |
| 3 | 6.333 | 8.000 | 8.333 |

Range of values within which the dual prices are applicable and within which the same constraints are binding. (Range of Feasibility)