

Suggested Problems

Set 4

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Problem 1

Solve the following problems using a two-phase simplex method.

1. **maximize** $x_1 - x_2 + x_3$
subject to

$$x_1 + x_2 + x_3 \leq 1$$

$$x_1 - x_2 \leq -1$$

$$x_1 - 2x_3 \leq -2$$

$$x_1, x_2, x_3 \geq 0$$

2. **maximize** $3x_1 + x_2$
subject to

$$x_1 - x_2 \leq -1$$

$$-x_1 - x_2 \leq -3$$

$$2x_1 - x_2 \leq 2$$

$$x_1, x_2 \geq 0$$

Problem 2

Solve by examining all corner-points..

1. **maximize** $3x_1 + x_2$

subject to

$$x_1 - x_2 \leq -1$$

$$-x_1 - x_2 \leq -3$$

$$2x_1 + x_2 \leq 4$$

$$x_1, x_2 \geq 0$$

2. **maximize** $3x_1 + x_2$

subject to

$$x_1 + 2x_2 \leq 4$$

$$4x_1 + x_2 \leq 4$$

$$x_1, x_2, \geq 0$$