Last name _____

First name _____

LARSON—OPER 635—CLASSROOM WORKSHEET 02

maximize: $z = x_1 + x_2 + x_3$

$$\begin{array}{lrcrcrcl} & x_1 & + & x_2 & & & \leq & 1 \\ \text{subject to:} & x_1 & & & + & x_3 & \leq & 1 \\ & & & x_2 & + & x_3 & \leq & 1 \end{array}$$

$x_1, x_2, x_3 \in \{0, 1\}$.

Because the variables are restricted to integers this is an *Integer Programming Problem.*

1. Check that $x_1 = x_2 = x_3 = 0$ is a *feasible* solution.

2. Find z for this solution.

3. Find another feasible solution that gives a larger value of z.

4. Find the *optimum* solution; that is, find x_1, x_2, x_3 that gives the largest possible value for z.

5. Prove that this solution is optimal.