Mathematical Methods for Economists 7th Assignment

Exercise 48 (Inequality Constraints III)

Solve the following problem:

 $\max 0.5x - y \ s.t. \ 0 \le y - x - e^{-x} - z^2, \ x \ge 0$

Exercise 49 (Inequality Constraints IV)

Solve the following problem:

$$\max 3\ln(z+1) - (z+2x+y)$$

subject to

$$z^2 \le x + y, \ x, y, z \ge 0$$

Exercise 50 (Inequality Constraints V)

Consider the problem

$$\max \ln(1+x) + y$$

subject to

 $qx + y \leq L, \ x, y \geq 0$

Solve the problem for $q \in (0, 1]$, L > 1.

Exercise 51 (Inequality Constraints VI)

Consider the following problem:

$$\max x_1^2 + x_2^2 + x_3^2$$

subject to

$$2x_1^2 + x_2^2 + x_3^2 \le r^2$$
$$x_1 + x_2 + x_3 = 0$$

Solve the maximization problem and verify the envelope result for mixed constraints.