

Solve the following linear programming problem:

$$\begin{array}{ll} \text{Maximize} & x_1 + x_2 + x_3 \\ \text{Subject to} & -10 \leq 2x_1 + x_2 + x_3 \leq 10 \\ & 1 \leq x_1 - x_2 - 2x_3 \leq \infty \\ & -\infty \leq -x_1 - 2x_2 - x_3 \leq 4 \\ & -1 \leq x_1 \leq 1 \\ & 2 \leq x_2 \leq \infty \\ & -5 \leq x_3 \leq 3 \end{array}$$