Exercise 1. Use the dual and simplex method to solve the following problem:

Minimize \( Z = 29x_1 + 10x_2 + 8x_3 \) subject to
\[
\begin{align*}
5x_1 + 2x_2 + x_3 & \geq 12 \\
3x_1 + x_2 + x_3 & \geq 8 \\
2x_1 + x_2 + x_3 & \geq 7
\end{align*}
\]

(1) Dual Problem: [5 points]

(2) Initial Tableau: [1 point]

(3) Final Tableau: [4 points]

(4) Solution of the Dual Problem: [5 points]

(5) Solution of the Initial Problem: [5 points]