1. Use complementary slackness to determine the set \( \{c_1, c_2, c_3\} \) for which \((1, 1, 0)\) is an optimal solution to the linear programming problem

\[
\begin{align*}
\text{minimize} & \quad c_1 x_1 + c_2 x_2 + c_3 x_3 \\
\text{subject to} & \quad x_1 - x_2 + x_3 \leq 0, \\
& \quad 2x_1 + x_2 - x_3 = 3, \\
& \quad x_1 - x_2 - x_3 \leq 1, \\
& \quad [x_1, x_2, x_3] \geq 0.
\end{align*}
\]

2. If a linear programming problem in standard form has a non-degenerate basic feasible solution that is optimal, prove that the dual problem has a unique optimal solution. Hint: consider complementary slackness.