Solution to Homework #2

Solution to 5.2

Dualizing upper bounds on variables

We take the same approach as in Example 5.2, also keeping in mind the primal-dual format as given in (5.1.6) and (5.1.7). The dual is found to be

\[
\text{maximize } b\lambda - M\mu \quad \text{subject to } \quad \lambda A - \mu \leq c, \mu \geq 0, \lambda \text{ unrestricted.}
\]

Solution to 5.4

Standard form

\[
\begin{align*}
\text{maximize} & \quad z = y_1 - y_2 + 3x_2 \\
\text{subject to} & \quad -y_1 + y_2 + x_2 + x_3 = 1 \\
& \quad y_1 - y_2 + x_2 + x_4 = 2 \\
& \quad y_1, y_2, x_2, x_3, x_4 \geq 0.
\end{align*}
\]