Additional problem due Wednesday April 11

The standard of answers to problems 2.1 and 2.8 was nearly uniformly excellent (I got tired of writing "Excellent presentation", so don't worry if you didn't receive such a commendation). This optional exercise is one way I might test the simplex method on an exam, where you won't have the support of the online pivot tool. Should you wish to see how I would grade this, please submit your solution as if this were an exam.

1. Consider the following dictionary:

$$
\begin{array}{rclrrrrrrr}
\zeta & = & 15 & + & x_2 & + & 3w_1 & - & x_3 \\
\hline
w_2 & = & 1 & & & - & w_1 & + & x_3 \\
x_1 & = & 4 & - & 2x_2 & + & 6w_1 & & \\
w_3 & = & 3 & - & x_2 & - & w_1 & + & 2x_3
\end{array}
$$

(a) Perform one iteration of the simplex method, using Bland's rule for pivoting.

(b) What is your new basic feasible solution? Is this dictionary optimal?