1. Problem 5.2-1.

2. Problem 5.2-2, but solve this problem two ways: first with the $M$ matrices, and second with the $B$ matrices. (You don’t need to repeat calculations the second time that are identical to those done the first time.)

3. Problem 5.3-12(a). Use what you know about the $M$ matrix—this is the “fundamental insight.”

4. Suppose someone hands you a table in the variables $z, x_1, \ldots, x_n$ that is basic in that it contains an identity matrix. Assume further that every entry at the top of columns $x_1, \ldots, x_n$ is nonnegative, but not every right-hand side is nonnegative (so this table is not basic feasible). Let’s assume that row $r$ contains a negative right-hand side. Devise a rule to select a pivot entry in this row, so that upon pivoting

   (a) the table retains the property that every entry at the top of columns $x_1, \ldots, x_n$ remains nonnegative; and

   (b) the entry in the upper right-hand corner does not increase.