354-04: Quiz #2, 2/2/06 *SOLUTIONS*

1. If all a'_{ji}, all b'_i, and $f_2, \ldots, f_n$ are all positive, then at most one pivot is needed to reach an optimal solution.
SOLUTION: T If the tableau is not already optimal, then a positive multiple of the pivot row will be added to the objective row, making the pivot column entry 0 *in the objective row, and keeping all other objective row entries* ≥ 0.

2. If $b'_i \geq 0$ for $i = 1, \ldots, m$, then the simplex method will lead to an optimal solution in finitely many steps, provided that such a solution exists and that Bland's Rule is used whenever a degenerate tableau is encountered.
SOLUTION: T

3. The value of z_0 strictly increases from one tableau to the next, whenever the simplex method is followed.
SOLUTION: F Not if $b'_i = 0$ *for the departing variable.*

4. Every row of every tableau, including the objective row, corresponds to an equation which is satisfied by all feasible solutions.
SOLUTION: T

5. The equation corresponding to the obj. row is $f_1x_1 + f_2x_2 + \cdots + f_nx_n = z_0$.
SOLUTION: F It's $z + f_1x_1 + f_2x_2 + \cdots + f_nx_n = z_0$.