Comments on Assignment 2

Question 1: When referring to A_B (and A_B^{-1}) you should be using the data (i.e. the vectors corresponding to the basic variables) from the original tableau/dictionary. As well, if you learn to use Matlab/LPMovie you will ensure that you don't make calculation errors.

Question 2: Most people did quite well on this question. A few problems occurred when people got hung up on invertibility of a matrix (as opposed to column rank). A few people didn't even understand the meaning of linear independence - LEARN IT!!!

Question 3: Many people mistakenly took for an example an initial dictionary and a single pivot in which, of course, a basic variable becomes non-basic. However, the question states that the variable we are considering must have just become basic *on an iteration of the simplex method*, not simply initialization. Any invalid pivots used, or pivoting when in reality the problem becomes clearly unbounded were not credited.

Question 4: If you did not get this question, please look at the solutions. The second part is quite easily demonstrated if you have the formula.

Question 5: Be very careful of the sign of the phase one objective function, i.e., min $w = x_6 + x_7 + x_8$ becomes max $w = -x_6 - x_7 - x_8$. When performing a pivot, note that if any of the basic variables has a negative value, the current dictionary is infeasible and so some pivot was bad. For part (c), note that we can discard the artificial variables from (b) once (if) a feasible solution is found as they all must have value zero. Also, write the given objective function in terms of the feasible basis found in (b).