Math 340 – Third homework

Assigned on 10 Feb, 2010. Due on 19 Feb, 2010, before 4 PM.

(I will collect assignments from the dropoff box at the math office before leaving work on Friday, and I will leave work some time after 4 PM).

– Read the description of the greedy algorithm on page 114 of Diestel. Then do Exercise 5.6 of Diestel (i.e. Exercise 6 of Chapter 5).
– Diestel 5.7. Read the hint. In particular, is there always an ordering $v_1, \ldots, v_n$ for which the greedy algorithm does at least as well as the approach described in 5.7? Are there cases where one algorithm does better or vice-versa? Give examples.
– Diestel. 5.25
– Bonus; complete and correct answer worth 2 percent of final grade for the course. Diestel 5.28. ($K_r^2$ is the graph with $2r$ vertices $\{v_{1,1}, v_{1,2}, v_{2,1}, v_{2,2}, \ldots, v_{r,1}, v_{r,2}\}$, where the only edges not present are the edges $\{v_{k,1}, v_{k,2}\}$, for each $k = 1, \ldots, r$. You can think of getting this graph from $K_r$ by “doubling” each vertex and making the new copy adjacent to all the same vertices as its double (and to their copies), but not adjacent to its own double.)
– Questions 6.2.1, 6.2.2, 6.2.3, 6.3.1, 6.3.3 of the course textbook.