Homework 7

December 2, 2009

1. a. Determine, with explanation, the number of Hamilton cycles in K_n.
   b. Determine, with explanation, the number of Hamilton cycles in $K_{n,n}$.
   c. Determine, with explanation, the number of Euler circuits of K_5.

2. Show that if G is a loop-free, connected graph with n vertices, with more than $n^2/4$ edges, then G is not bipartite.

3. Is $K_{2,3,2}$ planar or not? Justify your answer. Here, $K_{2,3,2}$ denotes a graph having 12 vertices, and disjoint sets of vertices V_1, V_2, V_3, $|V_1| = |V_3| = 2$, and $|V_2| = 3$, where every vertex in V_1 is connected to every vertex in V_2 by an edge and every vertex in V_2 is connected to every vertex in V_3 by an edge.