HOMEWORK 5 (18.314, FALL 2006)

1. Problem 4.4.6 (p. 160) from the book (MN).

2. Problem 4.4.8 (p. 160)

3. Problem 4.4.9 (p. 161)

4. a) Problem 7.1.4 (p. 224).

5. Problem 7.2.1 (p. 226)

6. We say that K_n *decomposes into graphs* H if the edges in K_n are a disjoint union of isomorphic copies of H. For example, K_3 is a disjoint union of three K_2's.

a) Check that K_5 decomposes into 3-paths ($= K_{1,2}$ in this case). Check that K_7 decomposes into 4-paths.

b) Check that K_7 decomposes into $K_{1,3}$'s. Check that K_7 decomposes into K_3's.

c) Prove that K_{2n+1} decomposes into $(n+1)$-paths for all $n > 1$.

d) Prove that K_{2n+1} decomposes into $K_{1,n}$'s for all $n > 1$.

e) Prove or disprove: K_{6n+1} decomposes into K_3's for all $n > 1$.

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This Homework is due Wednesday October 25 at 14:05 am.