

Math 344 Winter 2002

Problem Set 5

Section 3.1: 7, 8, 15, 18,21, 24, 25, 30, 37, 42, 43, 46, 47, 48, 51, 53, 54

Section 3.2 18, 20, 21, 22, 24, 26, 27, 28, 30, 31, 32, 40, 50, 51, 52, 53, 54

Note: In # 52 the picture of $K_{2,3}$ is wrong.

Section 7.2: #35

- A. In §3.2 #50 show that one graph has a Hamiltonian circuit but the other does not.
- B. Construct two non-isomorphic graphs with 5 vertices, both having 2 vertices of degree 3 and 3 vertices of degree 2.
- C. Read about Gray codes at the end of Section 3.2 and construct a Gray code for $n = 4$. (Hint: think about how the given Gray code for $n = 3$ can be obtained from the one for $n = 2$.) Given a Gray code for $n = k$ describe how to construct a Gray code for $n = k + 1$. Remark: graph theory probably won't help you here. The reason Gray codes are mentioned in this section is simply that the problem can be phrased in graph-theoretical terms.