

Homework #2 (due Tuesday 5 June 2007)

1. FAPP In For All Practical Purposes (FAPP):

- a) Ed. 6, Chapter 1, exercises 5, 6 (Hint: for (d), compare with the number of vertices), 7 (Note: if this number is n , you need to show that any way of removing $n - 1$ edges will *not* disconnect the graph), 11, 35, *45.

or

Ed. 7, Chapter 1, exercises 8 (Hint: for (d), compare with the number of vertices), 11, 9 (Note: if this number is n , you need to show that any way of removing $n - 1$ edges will *not* disconnect the graph), 15, 39, *47.

- b) On-line FAPP Chapter 1 “self-test” available at www.whfreeman.com/fapp7e/ (Ed. 7, on-line quiz, problem 6 of 10 is fishy).
- c) Ed. 6, Chapter 2, exercises 1 (but start at X_5), 5(b), *12, 13(a)(b), 29, 42(a)(b).

or

Ed. 7, Chapter 2, exercises 1, 7(b), *14, 15(a)(b), 35, 50(b)(c).

2. Additional sheet. On the additional sheet handed out in class, do:

- a) Problem 4 and additionally, can you find a circuit through the house?
- b) Problem 6.
- c) *Problem 20 (i.e. parts (a)-(i) on the upper left hand of page 138)

3. Edges of trees. A *tree* is a graph with no circuits. Draw some trees and for each, count the number, v , of its vertices and the number, e , of its edges. Make a conjecture about the relationship between the numbers v and e for trees. Give an idea as to why your conjecture should be true.