CS 381	**Introduction to Theory of Computing** Summer 2002
Homework 5	Due: Wed, June 26, 2002

You must justify (prove or explain) every statement you make.

1. Kozen, p. 308, number 1. Describe your algorithm as was done on pages 182-183 in lecture 26.

2. Kozen, p. 338, number 91. Repeat this procedure for the grammar of problem 69 on page 333 and the strings in parts (a) and (d) of that problem.

3. Give a Turing machine with input alphabet $\{a\}$ that on input a^m halts with $\vdash a^{2^m} \sqcup^\omega$ on the tape. I.e., the machine computes 2^m. Describe the operation of your machine at the level of detail as in lecture 29.

4. Kozen, p. 340, number 97. You do not need to specify all the transitions. Simply describe the operation of your machine at the level of detail as in lecture 29.

5. Kozen, page 340, number 98.