CSE105 Sections A and B Homework 3 Fall 2001

Note: The homework is the same for both sections. It will not be handed in. However, you are *strongly* encouraged to do the homework in order to prepare for the third quiz on **November 27** and the final. The quiz will contain similar problems for those topics we cover in class *before* the quiz. The final will cover the rest of the topics, as well as all those covered this quarter.

1) #3.9
2) #3.14
3) #3.15
4) #4.7
5) #4.10
6) #5.4
7) #5.12
8) #7.6
9) #7.7
10) Let

$$L = \{\langle M_1, M_2\rangle \mid M_1 \text{ and } M_2 \text{ are TMs such that, for some input } x, \text{ both } M_1 \text{ and } M_2 \text{ halt on } x\}.$$

   (a) Prove that L is Turing-recognizable.
   (b) Prove that L is undecidable.