Problem Set 3

Please turn in each problem on a separate page with your name.

1. Book, 5.22 and 5.23 . $[T$–recog iff $A \leq_m A_{TM}$ and decidable iff $A \leq_m 0^*1^*]$

2. Book, 5.25 . $[\text{give an undecidable } B, \text{ where } B \leq_m B]$
   Is it possible that $B$ is a $T$–recognizable language?

3. Book, 5.26 . $[A_{2DFA} \text{ and } E_{2DFA}]$

4. Book, 5.21 . $[\text{testing ambiguity is undecidable}]$

5. Book, 6.1 . $[\text{recursion theorem example}]$

6. Book, 6.11 . $[\text{give a model of } \phi_R]$

7. Book, 4.14 . $[\text{testing whether a CFG generates } 1^* \text{ is decidable}]$  Warning, it is hard.

The location of the 2pm recitation will be changed for the October 6.
It will revert for subsequent meetings.

Midterm exam: Tuesday, October 24, 2006, 11:00am – 12:30pm.
Final exam: Monday, December 18, 2006, 9:00am – 12:00 noon.