Problem Set 3

1. Book, 5.22 and 5.23. \([T\text{-recog } A \leq_m A\text{TM } \text{ and decidable iff } A \leq_m 0^*1^*]\)

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. \([A_{2\text{DFA}} \text{ and } E_{2\text{DFA}}]\)

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

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

6. Book, 6.11. \([\text{give a model of } \phi_n]\)

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