Sipser, Section 1.4: The Pumping Lemma

Reading: All of section 1.4

Homework Assignment 7
Due: November 23, in class

Homeworks are due at the beginning of class on the due date. Late homeworks will not be graded for credit, but I will give comments and feedback on them.

1. Do Exercise 1.14 from Sipser.

2. Which of the following languages are regular, and which are non-regular? Explain how you know. (No pumping-lemma proofs needed).
   a. \{ab, abb, babb, abba\}
   b. 0*1*00(10)*
   c. \{a^n b^n | n \geq 0\}
   d. \{a^m b^n | m, n \geq 0\}
   e. \{ 1, 01, 001, 0001, \ldots \}
   f. \phi

3. Do the following problems from Sipser:
   1.17a
   1.17b
   1.23a
   1.23b

   You need to give pumping-lemma arguments for the first three; but problem 1.23b can be answered without one.