CSE 311 Quiz Section 9: May 29, 2014

1. Section 13.4 [6th ed.: Section 12.4], exercise 22: the "pumping lemma". Let L be a regular language accepted by a finite state automaton with p states. Then any string $x \in L$ of length at least p can be written as $x = uvw$ satisfying the following conditions:

   (a) $|v| \geq 1$,

   (b) $|uv| \leq p$, and

   (c) for all nonnegative integers $i, uv^i w \in L$.

2. Section 13.4 [6th ed.: Section 12.4], exercise 25: Show that the set of palindromes over $\{0, 1\}$ is not regular, using the pumping lemma. (Hint: consider palindromes of the form $0^N 10^N$.)