Homework 4

Return your answers by email to jaime.seguel@upr.edu on October 5th, 2018; no later than 4:30PM.

1. Given the NFSA $N = (\{a,b,c,d,e\}, \{0,1\}, \delta, a, \{e\})$, where

δ	0	1	ε
a	$\{c\}$	$\{b\}$	ϕ
b	ϕ	$\{a,d\}$	ϕ
c	ϕ	$\{d\}$	$\{b\}$
d	$\{b,c\}$	$\{d\}$	$\{e\}$
e	$\{a\}$	ϕ	ϕ

   use the method discussed in class to find

   (a) the language of N;

   (b) a deterministic automaton that is equivalent to N.

2. Find a proof of the pumping lemma for regular languages based exclusively on regular expressions (**do not use automata**. The first sentence in your proof should be: *Since L is regular, there is a regular expression R representing L*).