

Com S 331  
Fall 2009  
Homework #3

Due Friday, September 18, at beginning of class.

17. How many DFAs  $M = (Q, \Sigma, \delta, s, F)$  are there with  $\Sigma = \{0, 1\}$  and  $Q = \{1, 2, \dots, n\}$ ?

18. Prove that there is a language  $A \subseteq \{0, 1\}^*$  with both of the following properties:

- (i) For all  $x \in A$ ,  $|x| \leq 5$ .
- (ii) Every DFA that decides  $A$  has more than 8 states.

19. p. 302, #1.

20. p. 302, #2.

21. p. 302, #3.

22. p. 316, #3.

23. p. 316, #5(a).

24. p. 318, #9(a).