

Problem Set 1

- Chapter 1 pp. 83–94: Exercises and Problems 1.1, 1.2, 1.3, 1.4 (a, b, c), 1.5 (f,h), 1.7 (e), 1.9 (b), 1.14, 1.15, 1.17, 1.19 (b), , 1.20 (e), 1.21 (b), 1.28 (c), 1.29 (b), 1.30
- Is the following language regular? Prove your answer.

$$L_1 = \{w \mid w \text{ is a binary representation of a natural number that is a multiple of } 3\}$$

- Show that the language $L_2 = \{ab^nc^n \mid n \geq 0\}$ is non-regular.
- Use the fact that L_2 is non-regular and a closure property of regular languages to do Problem 1.49.
- Problem 1.51 (b, c)