

**Today** Introduction; recursion theorem (quick). § 0.\*, § 6.1.<sup>1</sup>

**Next class** Preliminaries and more. § 0.\* (thoroughly); § 6.1 (the best you can).

1. List the members of your group below. Underline your name.

2. 1000 keys to success:

- (a) Remove \_\_\_\_\_ ; this work on undivided attention and sharp focus.
- (b) Read assigned material \_\_\_\_\_ and after class.
- (c) Read in \_\_\_\_\_ -mode, not in fiction-mode or speed-mode.
- (d) Mathematical reading is a \_\_\_\_\_ activity.
- (e) Use the \_\_\_\_\_ for questions and discussions outside class.
- (f) Do not be \_\_\_\_\_ by difficulties.
- (g) You should be very \_\_\_\_\_ if everything seems easy.
- (h) Go back and forth between intuitive and \_\_\_\_\_ statements.

3. Refer to Lemma 6.1 (p. 246) in the textbook. Provide an implementation of  $Q$  in a suitable programming language (e.g., Scheme, Python, Java, C).

For today, interpret *Turing Machine* as an runnable (or running) program (process) and a *TM description* as its source code.

---

<sup>1</sup>Throughout this course, section numbers such as these will, by default, refer to the textbook: Michael Sipser. *Introduction to the Theory of Computation*. Cengage Learning, 3rd edition, 2013.

4. Use the scheme described on p. 247 of the textbook to generate a concrete implementation of the *self* program.

Ask questions and use group discussions to clarify ideas.

Explain how your program works by detailing the correspondence between its elements and those in the description.