Section 1.3: Regular Expressions

These exercises reflect material from our text, *Introduction to the Theory of Computation*, by Michael Sipser, PWS Publishing Co., 1997.

Definitions

Define each of the following concepts:

(a) Regular language

(b) Regular expression

(c) Inductive definition

(d) Generalized nondeterministic finite automaton, GNFA

Results

Prove or disprove:
   A language is regular iff it is described by a regular expression.

Algorithms

Convert a regular expression into an equivalent finite automaton.

Convert a finite automaton into an equivalent regular expression.

Exercises

We will attempt to solve each of the following exercises as a community project in class today. Finish these solutions as homework exercises, write them up carefully and clearly, and hand them in at the beginning of the next class.

Exercises for Section 1.3, page 86: 13, 14, 15, 16