Reading

Sipser, sections 1.1 and 1.2.

Practice

Sipser, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.8, 1.10, 1.11, 1.24, 1.25, 1.26, 1.29, 1.30, 1.31, 1.32, 1.34, 1.35.

To Be Handed In

1. Sipser, 1.7.

2. Sipser, 1.9.


4. Sipser, 1.27.

5. Given two binary strings $x$ and $y$ with $|x| = |y|$, we say that that they are off-by-one if there exists exactly one position where $x$ has value 1 and $y$ has value 0 or vice-versa. For example 0010 and 0000 are off-by-one but 0010 and 0001 are not. Given a language $L$ over $\{0, 1\}$ we define $OFFBYONE(L)$ as follows:

$$\{x \in \{0, 1\}^* | \text{there exists } y \in L \text{ such that } x \text{ is off-by-one } y\}.$$ 

Prove that if $L$ is regular then so is $OFFBYONE(L)$. 