Quiz 1

0. Your NAME:

1. Finish the definition: A **language** (over an alphabet Σ) is

2. Finish the definition (according to the conventions used in class and in your text): An NFA M is a 5-tuple $M = (Q, \Sigma, \delta, q_0, F)$ where Q is a finite set, Σ is an alphabet, $q_0 \in Q$, $F \subseteq Q$, and

$$\delta : \qquad \times \qquad \to \qquad .$$

3. True/False/Meaningless (circle one): $|\emptyset^*| = |\emptyset|$.

4. Design a DFA that accepts the language $\overline{\{101\}}$. (Assume an underlying alphabet of $\{0, 1\}$. $\overline{L}$ means the complement of L.)

5. If L is a language L^R is the set of all strings $x_n \cdots x_1$ such that $x_1 \cdots x_n \in L$. Give a precise mathematical "translation" of the following sentence: *The DFA-acceptable languages are closed under reversal.* (Don't prove or disprove; just say what this means.)

Graded by: