1. (15) Let $M$ be a DFA.
   (a) Prove that $L(M)$ is decidable.
   (b) Explain how the TM you constructed in part (a) is different than the TM that was constructed in the proof that $A_{DFA}$ is decidable.

2. (15) Let $F_{DFA} = \{ \langle M \rangle \mid M$ is a DFA and $L(M)$ is a finite language $\}$.
   Prove that $F_{DFA}$ is decidable.

3. (15) Let $L_{\subseteq} = \{ \langle M, M' \rangle \mid M$ and $M'$ are DFAs and $L(M) \subseteq L(M') \}$.
   Prove that $L_{\subseteq}$ is decidable.

4. (15) Prove that the decidable languages are closed under the (binary) operation of concatenation.

5. (15) Prove or disprove that the decidable languages are closed under the (unary) operation of reversal.