1. Write out an algorithmic procedure that will convert a TG with more than one final state into an equivalent one with exactly one final state.

2. Write a regular expression for the language accepted by the following TG, in which state 2 is the only final state.

3. Do problem 19 on page 91 of the textbook.

4. Let \( L \) be the language accepted by some TG. Define \( \text{reverse}(L) \) to be the set \( \{ w \mid \text{reverse}(w) \text{ is in } L \} \). Prove that \( \text{reverse}(L) \) is also accepted by some TG.

5. Let \( L' \) denote the complement of \( L \). In other words, \( L' \) is the set of all words over the same alphabet as \( L \) that are not in \( L \). If we have a TG accepting \( L \), can we transform it into a TG accepting \( L' \) by changing which states are final states? Justify your answer.