Formal Language Selected Homework Chapter 4.2

1. Show that there exists an algorithm to determine whether or not $w \in L_1 - L_2$, for any given w and any regular languages L_1 and L_2.

2. Show that there exists an algorithm for determining if $L_1 \subseteq L_2$, for any regular languages L_1 and L_2.

5. A language is said to be a *palindrome* language if $L = L^R$. Find an algorithm for determining if a given regular language is a palindrome language.

12. Let L be any regular language on $\Sigma = \{a, b\}$. Show that an algorithm exists for determining if L contains any strings of even length.