Automata Theory: Assignment 6

Due date: October 18 (Thursday)

Problem 1 (5 points)
Demonstrate that, if L_1 is a regular language on the alphabet $\Sigma = \{a, b\}$, then the following subset of L_1 is also a regular language:

$$L_2 = \{w : \ w \in L_1 \text{ and } w \text{ includes at least one } b\}.$$

Problem 2 (5 points)
Argue that the language $\{a^n b^{2n} : \ n \geq 0\}$ is not regular.