Theory of Computation

Exercise 1: (Mathematic preliminary, Language, String)

1. Let $\sum = \{a, b\}$ and $L = \{aa, bb\}$. Describe $\overline{L}$ by a set notation.

$$\overline{L} = \{\lambda, a, b, ab, ba\} \cup \not{L}$$

$$= \{w \in \{a,b\}^* : |w| \geq 3\}$$

2. Find five strings which are in each of the following languages.

a) $L = \{w \in \{a\}^* : |w| \ mod \ 3 \ \neq |w| \ mod \ 2 \}$

b) $L = \{w \in \{a, b\}^* : n_a(w) \geq n_b(w) + 1\}$

Where $n_a(w)$ means the number of a's in string w.