

# Review 12

## Automata & Theory of Computation

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Student ID:

Name:

1. Show the following languages are not regular.

(1)  $L = \{a^n b^n : n \geq 0\}$

(2)  $L = \{ww^R : w \in \Sigma^*\}$

$$(3) \ \Sigma = \{a, b\}, \ L = \{w \in \Sigma^* : n_a(w) < n_b(w)\}$$