

CSC341 Lab 9B

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Academic Honesty

Written Sources Used:

Michael Sipser - Introduction to the Theory of Computation

Help Obtained:

None

Question 1

- (1) True
- (2) True
- (3) True
- (4) False
- (5) True
- (6) True
- (7) False

Question 2

- (1) L_1 can be reduced from $HALT_{TM}$, by creating a TM, let's say M' , that checks whether M behaves the same for both w and w^R . Since it can't determine this accurately, L_1 is undecidable.
- (2) L_2 can also be reduced from $HALT_{TM}$. We create M' that if M halts on the input w , M' writes a \$ on the tape and halts. This only works if we can decide $HALT_{TM}$, which is undecidable. Therefore, L_2 is undecidable.

Question 3

$$\{[\frac{ab}{abab}], [\frac{ab}{abab}], [\frac{aba}{b}], [\frac{b}{a}], [\frac{b}{a}], [\frac{aa}{a}], [\frac{aa}{a}]\}$$