Prework 3.1b: More Turing Machines

Write your preliminary solutions to each problem and submit a PDF on Canvas. The names in brackets indicate the subset responsible for presenting the problem.

1. [Joshua, Ben, Connor, David] Read pages 176–177 (or pages 148–149 in the Second Edition). Explain (in your own words) how you can simulate a Multitape Turing Machine on a regular single-tape TM.

2. [Allie, Grace, Curtis, Meghan] Let $A = \{a^i b^j c^k d^l \mid ij = kl, \ i, j, k, l \geq 1\}$. Give an implementation description of a decider for A.

3. [Micah, Ky, Todd, Andrew, Levi] Let $B = \{b_1 \# b_2 \mid b_1, b_2 \in \{0, 1\}^* \text{ and } b_1 > b_2 \text{ as binary numbers}\}$. Give an implementation description of a decider for B.

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