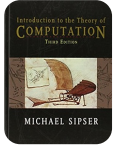


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Exercício 1

Capítulo 3, Página 187



Introduction to the Theory of Computation

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Solução



Certificado

Passo 1

1 de 2

We follow the diagram for TM M_2 from *FIGURE 3.8*.

Part a.

Sequence of configurations is:

$$q_1 0, \sqcup q_2 \sqcup, \sqcup \sqcup q_{\text{accept}} \sqcup.$$

Part b.

$$\begin{array}{ll} q_1 00 & q_5 \sqcup \mathbf{x} \sqcup \\ \sqcup q_2 0 & \sqcup q_2 \mathbf{x} \sqcup \\ \sqcup \mathbf{x} q_3 \sqcup & \sqcup \mathbf{x} q_2 \sqcup \\ \sqcup q_5 \mathbf{x} \sqcup & \sqcup \mathbf{x} \sqcup q_{\text{accept}} \end{array}$$

Part c.

$$\begin{array}{l} q_1 000 \\ \sqcup q_2 00 \\ \sqcup \mathbf{x} q_3 0 \\ \sqcup \mathbf{x} 0 q_4 \sqcup \\ \sqcup \mathbf{x} 0 \sqcup q_{\text{reject}} \end{array}$$

Part d.

$$\begin{array}{llll} q_1 000000 & \sqcup \mathbf{x} 0 \mathbf{x} 0 q_4 0 & \sqcup \mathbf{x} q_5 0 \mathbf{x} 0 \mathbf{x} \sqcup & \sqcup \mathbf{x} \mathbf{x} q_3 \mathbf{x} 0 \mathbf{x} \sqcup \\ \sqcup q_2 00000 & \sqcup \mathbf{x} 0 \mathbf{x} 0 \mathbf{x} q_3 \sqcup & \sqcup q_5 \mathbf{x} 0 \mathbf{x} 0 \mathbf{x} \sqcup & \sqcup \mathbf{x} \mathbf{x} \mathbf{x} q_3 0 \mathbf{x} \sqcup \\ \sqcup \mathbf{x} q_3 0000 & \sqcup \mathbf{x} 0 \mathbf{x} 0 q_5 \mathbf{x} \sqcup & q_5 \sqcup \mathbf{x} 0 \mathbf{x} 0 \mathbf{x} \sqcup & \sqcup \mathbf{x} \mathbf{x} \mathbf{x} 0 q_4 \mathbf{x} \sqcup \\ \sqcup \mathbf{x} 0 q_4 000 & \sqcup \mathbf{x} 0 \mathbf{x} q_5 0 \mathbf{x} \sqcup & \sqcup q_2 \mathbf{x} 0 \mathbf{x} 0 \mathbf{x} \sqcup & \sqcup \mathbf{x} \mathbf{x} \mathbf{x} 0 \mathbf{x} q_4 \sqcup \\ \sqcup \mathbf{x} 0 \mathbf{x} q_3 00 & \sqcup \mathbf{x} 0 q_5 \mathbf{x} 0 \mathbf{x} \sqcup & \sqcup \mathbf{x} q_2 0 \mathbf{x} 0 \mathbf{x} \sqcup & \sqcup \mathbf{x} \mathbf{x} \mathbf{x} 0 \mathbf{x} \sqcup q_{\text{reject}} \sqcup \end{array}$$

Resultado

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We list sequences of configurations, following the diagram from *FIGURE 3.8*.

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