# 3.2d p.187

M1 recognizes so the input, 10#11, should be rejected:

|  |  |
| --- | --- |
| q110#11 | q7x0#x1 |
| xq30#11 | xq10#x1 |
| x0q3#11 | xxq2#x1 |
| x0#q511 | xx#q4x1 |
| x0q6#x1 | xx#xq41 |
| xq70#x1 | xx#x1qreject |

# 3.2e p.187

M1 recognizes so the input, 10#10, should be accepted:

|  |  |  |
| --- | --- | --- |
| q110#10 | xq10#x0 | xxq1#xx |
| xq30#10 | xxq2#x0 | xx#q8xx |
| x0q3#10 | xx#q4x0 | xx#xq8x |
| x0#q510 | xx#xq40 | xx#xxq8 |
| x0q6#x0 | xx#q6xx | xx#xxqaccept |
| xq70#x0 | xxq6#xx |  |
| q7x0#x0 | xq7x#xx |  |

# 4.

\* = wildcard and therefore can be any symbol of .

# 5. 3.5d p.188

No, by definition a Turing machine has and where . Additionally, the TM must have an initial state or the machine would immediately halt upon execution. Therefore, a TM requires a minimum of three states.