

Draw a finite automata for each of the following languages

1. $\Sigma = \{a, b, c\}$, $L(M) = \{w \mid w = wR \text{ (} w \text{ is the same as the reverse of } w)\}$

2. $\Sigma = \{a, b, c\}$, $L(M) = \{w \mid w \text{ can't have a substring } xy \text{ where } x = y\}$

3. $\Sigma = \{a, b, c\}$, $L(M) = \{w \mid 5 \Rightarrow |w|\}$

4. $\Sigma = \{a, b, c\}$, $L(M) = \{w \mid \text{each alphabet should appear twice at most in } w\}$

5. $\Sigma = \{a, b, c\}$, $L(M) = \{w \mid \text{each alphabet should appear twice at least in } w\}$

6. $\Sigma = \{a, b, c\}$, $L(M) = \{w \mid \text{each alphabet should appear exactly once in } w\}$

7. $\Sigma = \{a, b, c\}$, $L(M) = \{w \mid \text{each alphabet } x_i \text{ where } i \in \{1, 5, 10, 15, 20, \dots\} \text{ must be 'a'}\}$

8. $\Sigma = \{a, b, c\}$, $L(M) = \{w \mid \text{each alphabet } x_i \text{ where } i \in \{1, 5, 10, 15, 20\} \text{ must be 'a' or 'b'}\}$