

COT 4210 Homework #1: Sections 1.1, 1.2

Assigned: 1/12/2021

Due Date/Time: On Webcourses

1) Draw the state diagram for the DFA formally described below:

$\{Q, \Sigma, \delta, q_0, F\}$ where

$Q = \{q_0, q_1, q_2, q_3\}$

$\Sigma = \{0, 1\}$

Start state = q_0

$F = \{q_1, q_3\}$

$\delta =$

	0	1
q_0	q_0	q_1
q_1	q_2	q_0
q_2	q_3	q_2
q_3	q_0	q_1

2) Draw a DFA that accepts the following language:

$\{w \mid w\text{'s decimal equivalent is divisible by } 5\}$

3) Draw a DFA that accepts the following language:

$\{w \mid w \text{ contains an odd number of 1s, or exactly 2 0s.}\}$

4) Draw a DFA that accepts the following language:

$\{w \mid w \text{ doesn't contain the substring } 110\}$

5) Draw a NFA that accepts the following language:

$\{w \mid w \text{ contains exactly 3 0s after the last 1.}\}$

6) Draw a NFA that accepts the following language:

$\{w \mid w \text{ contains exactly 1 occurrence of the substrings } 10 \text{ and } 01\}$