

# ClassName

## Homework #123

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August 24, 2020

### Problem 1

Enter the problem description here.

#### Part A

Enter part (a) of the problem 1 here

#### Solution

Enter solution of the problem 1(a) here

### Problem 2

If you want to input a figure, please do something like this.

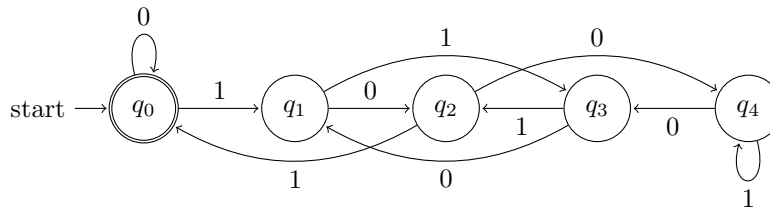


Figure 1: DFA,  $A$ , this is really beautiful, ya know?

If you want to enter a table, please do something like this

	$x \bmod 5 = 0$	$x \bmod 5 = 1$	$x \bmod 5 = 2$	$x \bmod 5 = 3$	$x \bmod 5 = 4$
$x0$	0	2	4	1	3
$x1$	1	3	0	2	4

### Problem 3

If you need to write a proof, please do something like this.

*Proof.* Write down your proof here

Write down your proof here

Write down your proof here

Write down your proof here

□

## Problem 18

If you need to insert codes into your homework, please do something like this.

```

1  import numpy as np
2
3  def incmatrix(genl1,genl2):
4      m = len(genl1)
5      n = len(genl2)
6      M = None #to become the incidence matrix
7      VT = np.zeros((n*m,1), int) #dummy variable
8
9      #compute the bitwise xor matrix
10     M1 = bitxormatrix(genl1)
11     M2 = np.triu(bitxormatrix(genl2),1)
12
13     for i in range(m-1):
14         for j in range(i+1, m):
15             [r,c] = np.where(M2 == M1[i,j])
16             for k in range(len(r)):
17                 VT[(i)*n + r[k]] = 1;
18                 VT[(i)*n + c[k]] = 1;
19                 VT[(j)*n + r[k]] = 1;
20                 VT[(j)*n + c[k]] = 1;
21
22             if M is None:
23                 M = np.copy(VT)
24             else:
25                 M = np.concatenate((M, VT), 1)
26
27             VT = np.zeros((n*m,1), int)
28
29     return M
30

```

Listing 1: code examples

## Problem 19

Find the derivative of  $f(x) = x^4 + 3x^2 - 2$