A logo with a tree and text

Description automatically generated

Signal Assignment

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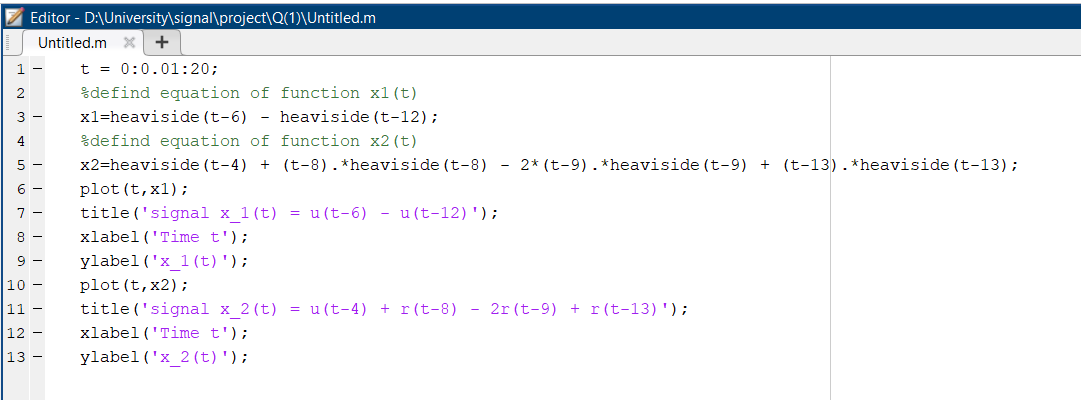
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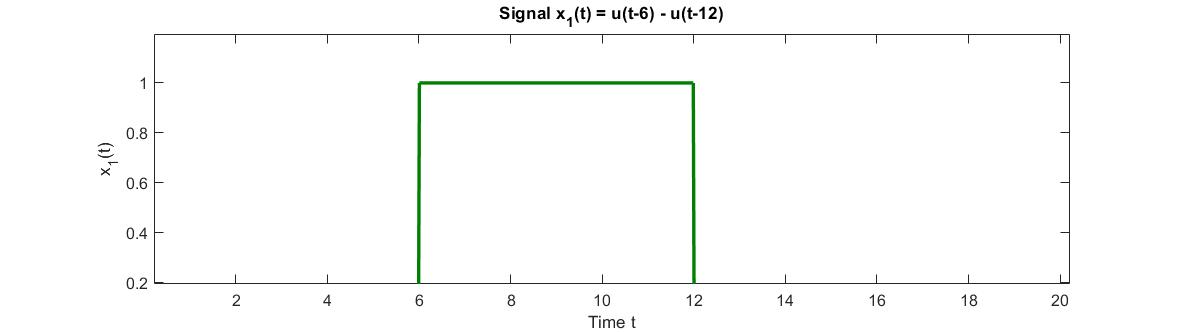
# Question 1:

## Code:



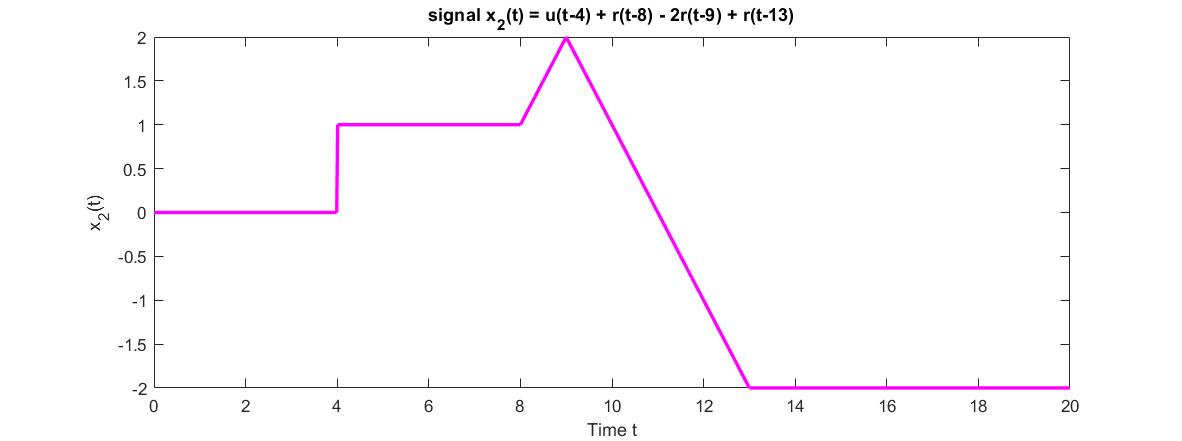
1. x1(t) = u(t −6) − u(t −12)

## Plot:



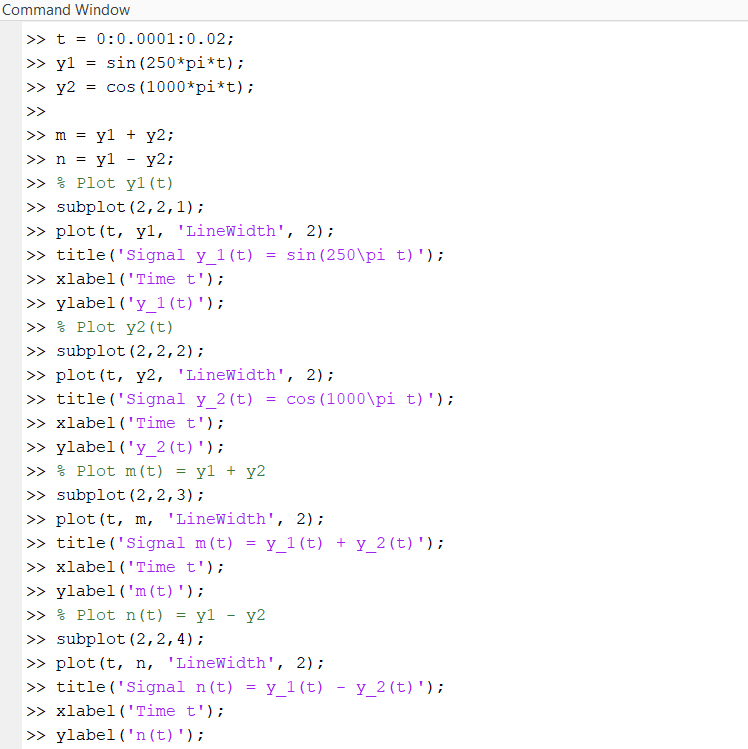
1. x2(t)= u(t −4) + r(t −8) − 2r(t −9) + r(t −13) in the time interval = [0, 20]

## Plot:



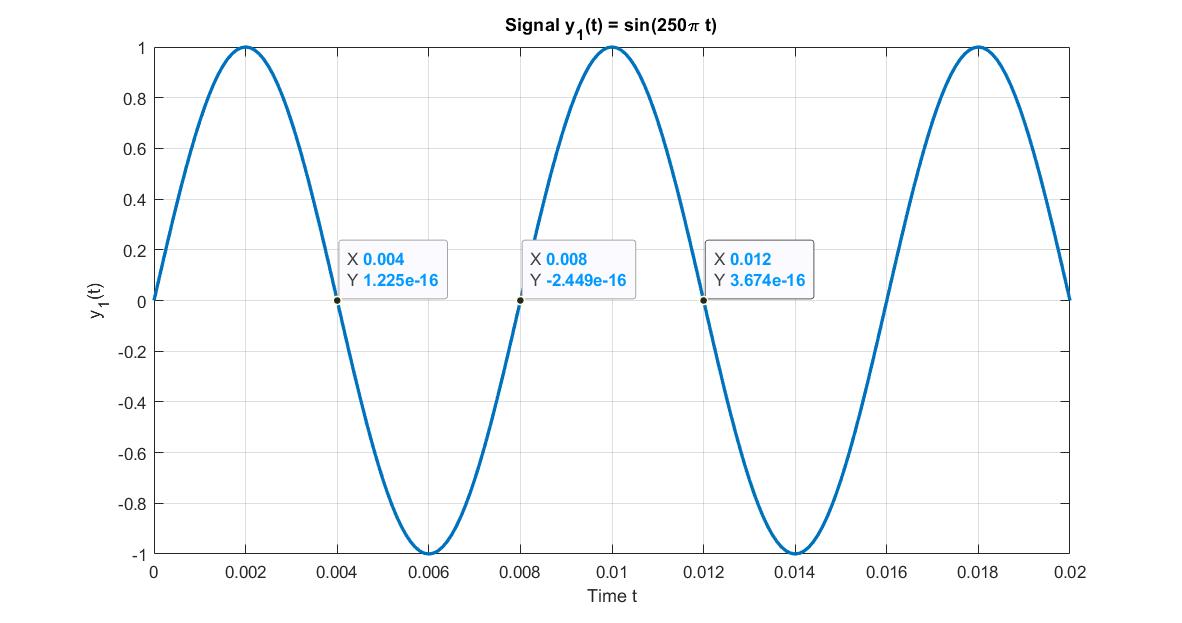
# Question 2:

## Code:



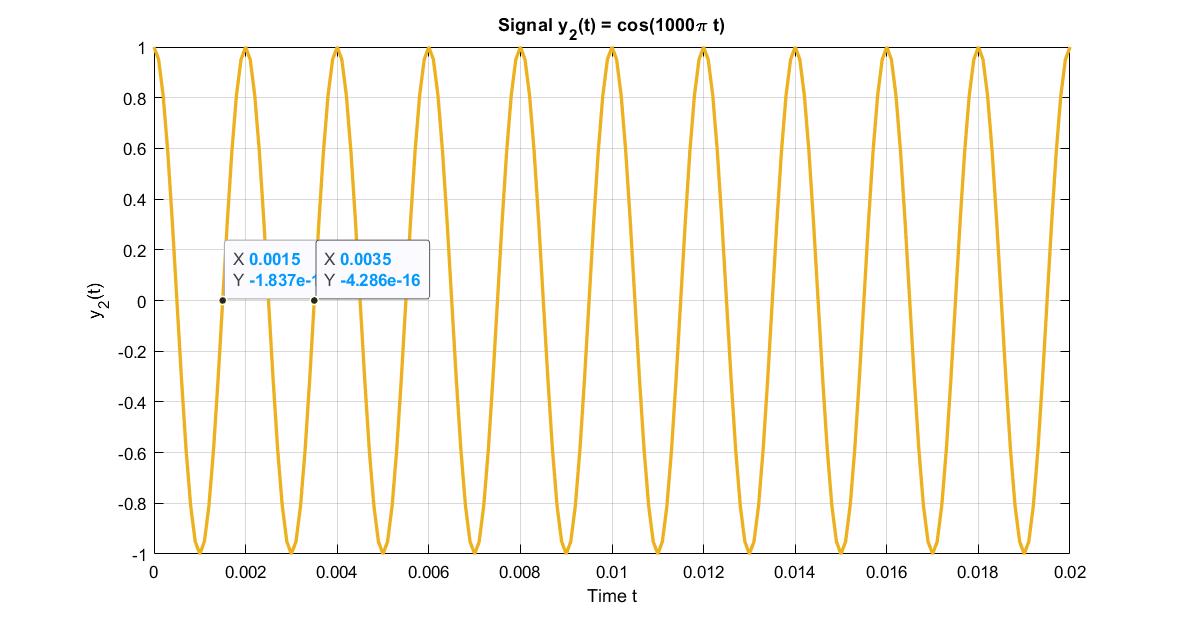
1. y1(t)= sin(250πt)

## Plot:



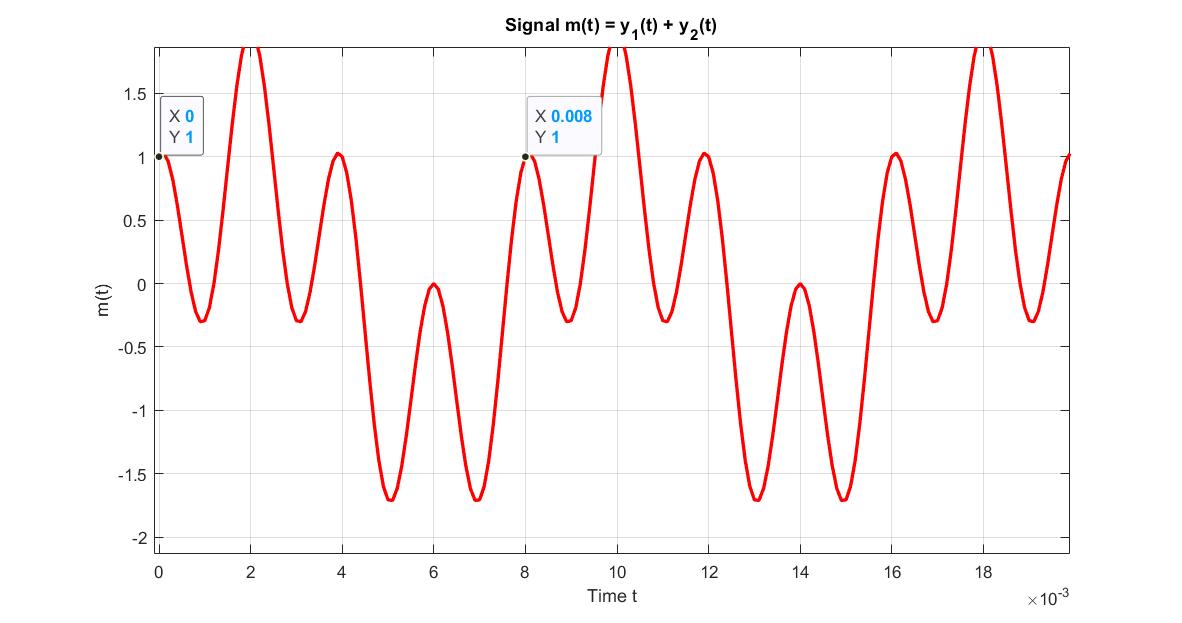
1. y2(t)= cos(1000πt)

## Plot:



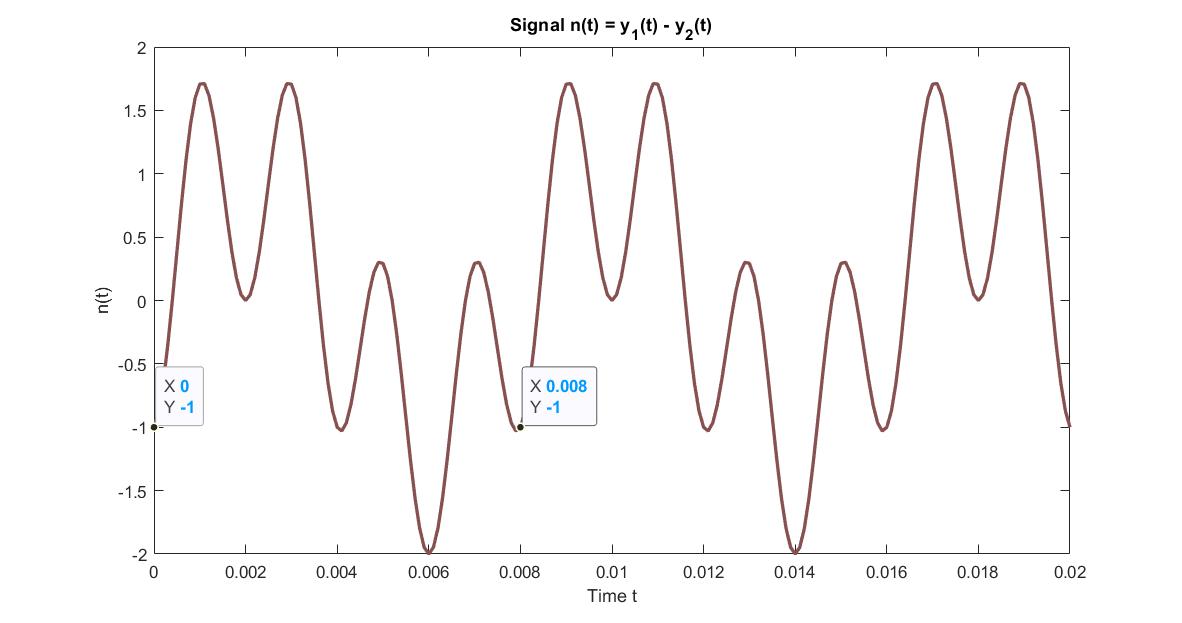
1. m(t)= y1+y2

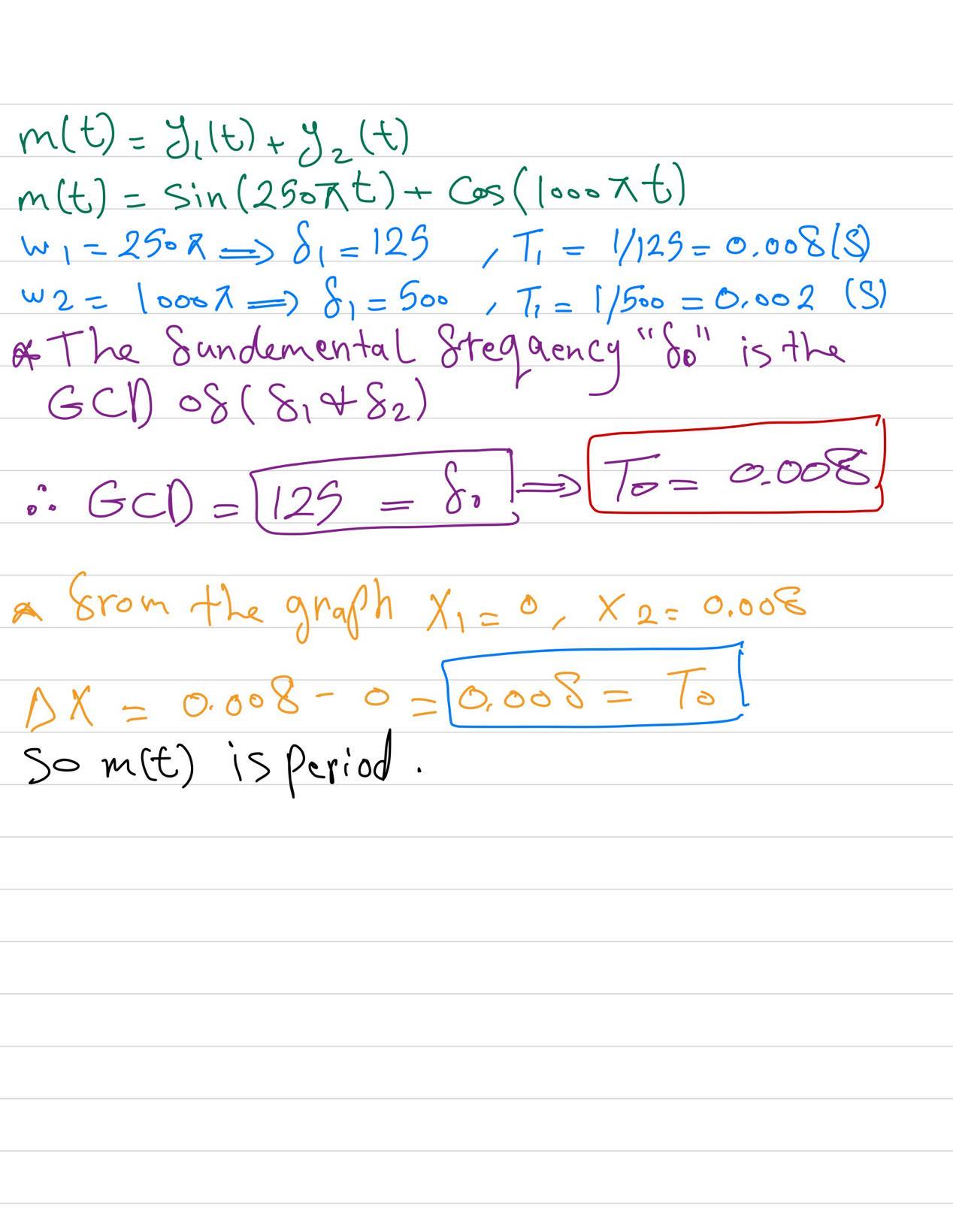
## Plot:

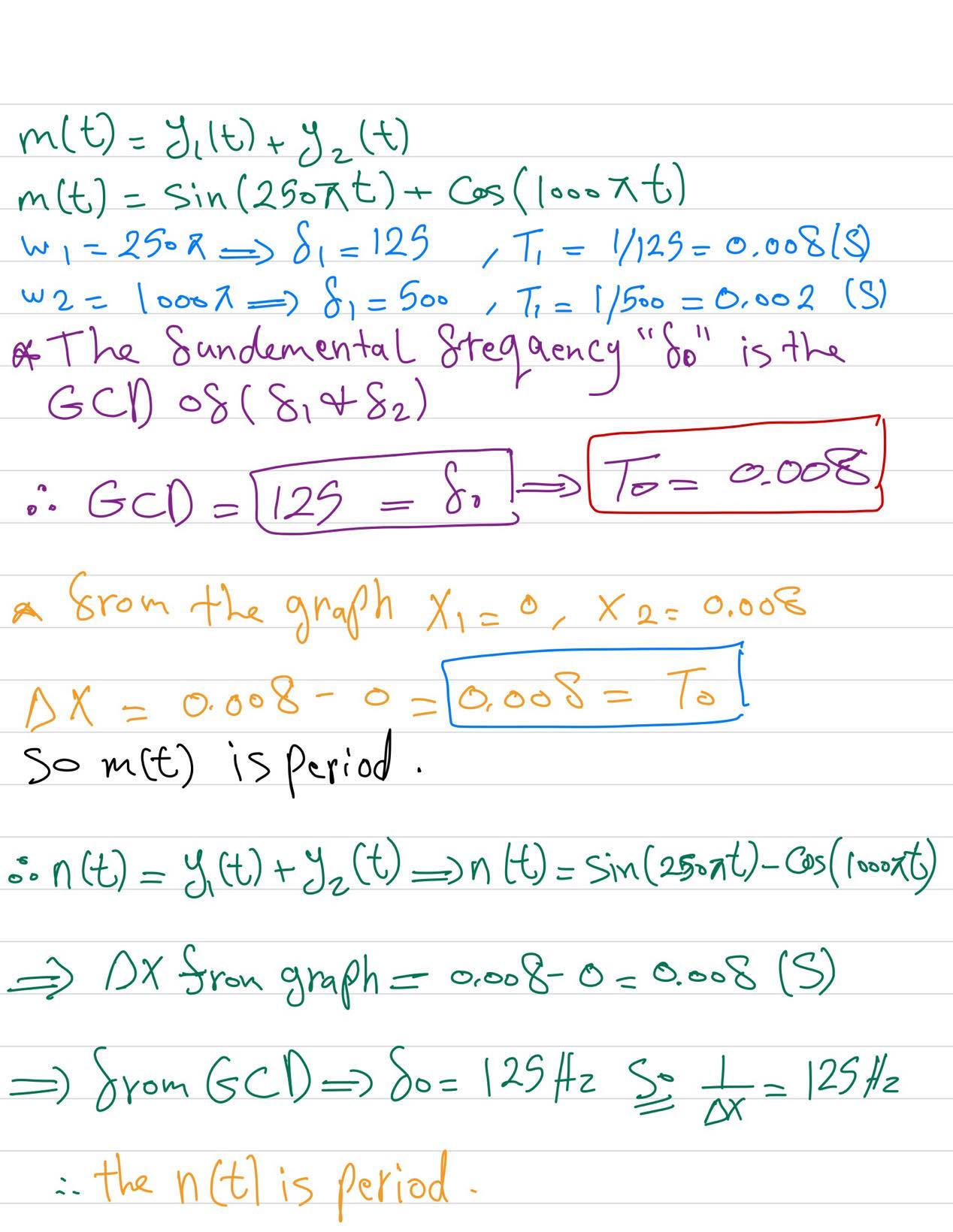


1. n(t)= y1−y2

## Plot:

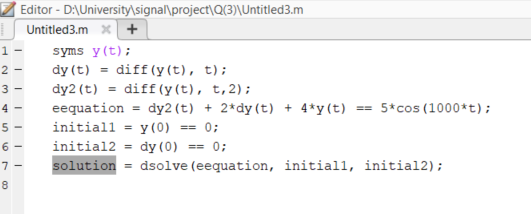






# Question 3:

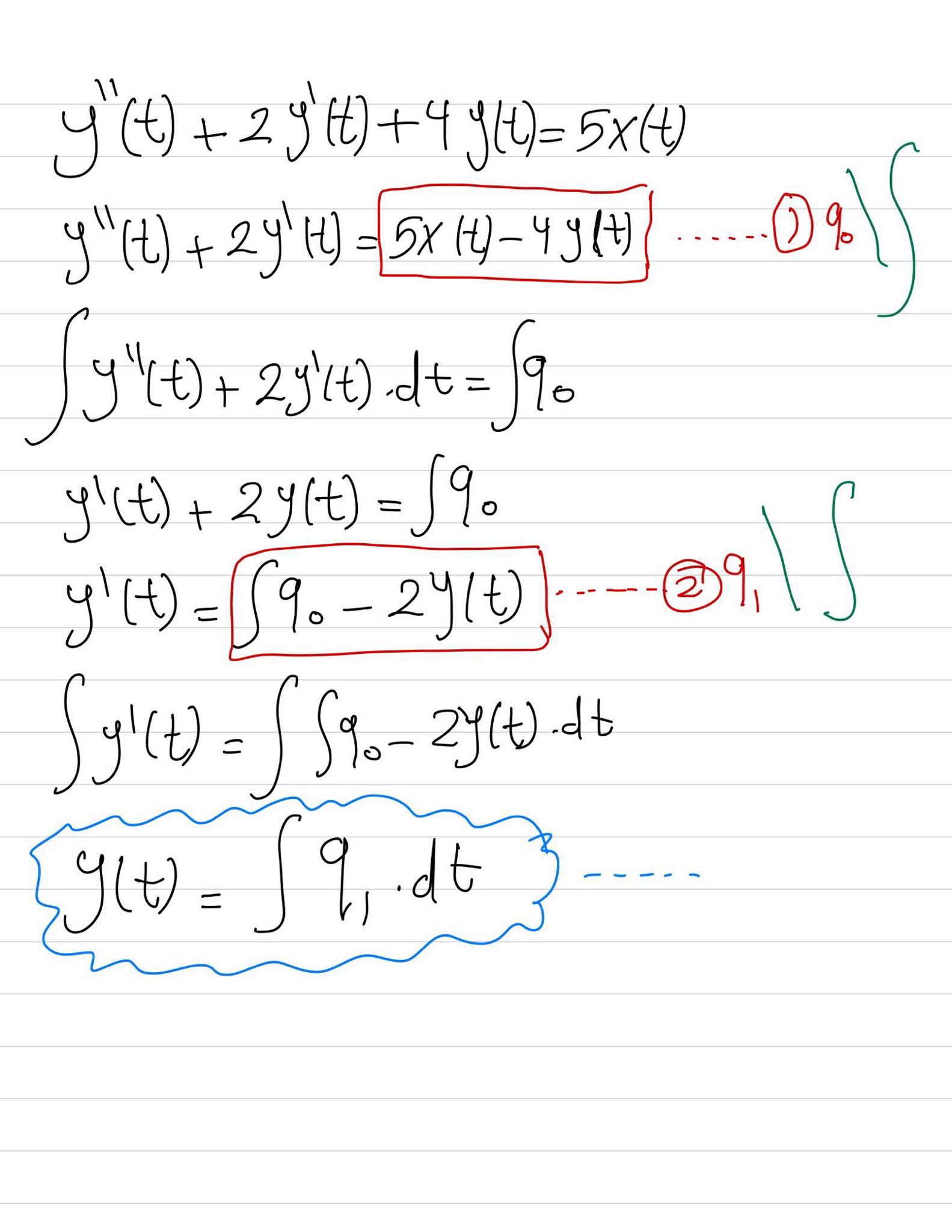
## Code:



## Solution:

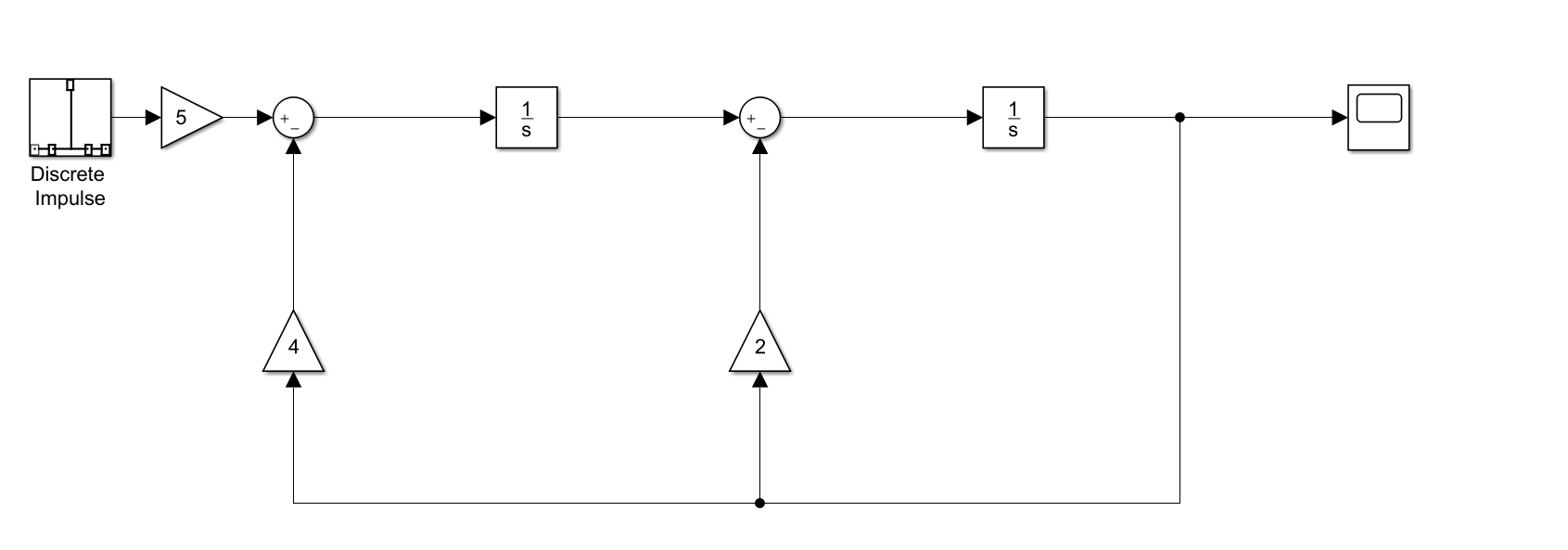
sin(3^(1/2)\*t)\*((625\*cos(1000\*t - 3^(1/2)\*t))/124999500002 - (625\*cos(1000\*t + 3^(1/2)\*t))/124999500002 - (1249995\*sin(1000\*t + 3^(1/2)\*t))/499998000008 + (1249995\*sin(1000\*t - 3^(1/2)\*t))/499998000008 + (1250005\*3^(1/2)\*cos(1000\*t + 3^(1/2)\*t))/1499994000024 + (1250005\*3^(1/2)\*cos(1000\*t - 3^(1/2)\*t))/1499994000024 + (312499375\*3^(1/2)\*sin(1000\*t + 3^(1/2)\*t))/374998500006 + (312499375\*3^(1/2)\*sin(1000\*t - 3^(1/2)\*t))/374998500006) - (5\*3^(1/2)\*cos(3^(1/2)\*t)\*((sin(t\*(3^(1/2) - 1000)) - cos(t\*(3^(1/2) - 1000))\*(3^(1/2) - 1000))/((3^(1/2) - 1000)^2 + 1) + (sin(t\*(3^(1/2) + 1000)) - cos(t\*(3^(1/2) + 1000))\*(3^(1/2) + 1000))/((3^(1/2) + 1000)^2 + 1)))/6 - (1250005\*3^(1/2)\*exp(-t)\*sin(3^(1/2)\*t))/749997000012 - (1249995\*exp(-t)\*cos(3^(1/2)\*t))/(4\*(500\*3^(1/2) - 250001)\*(500\*3^(1/2) + 250001))

# Question 4:

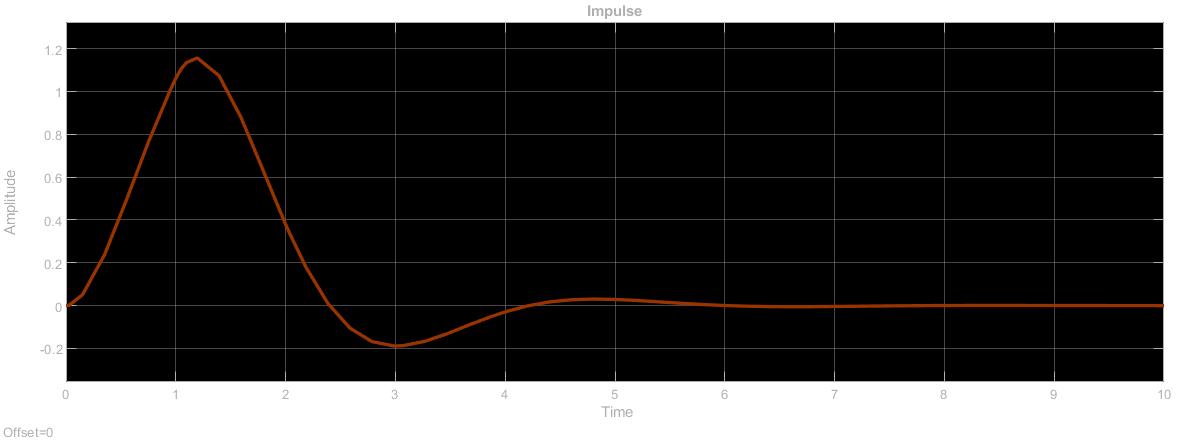


## **Impulse Response**

### Simulation:

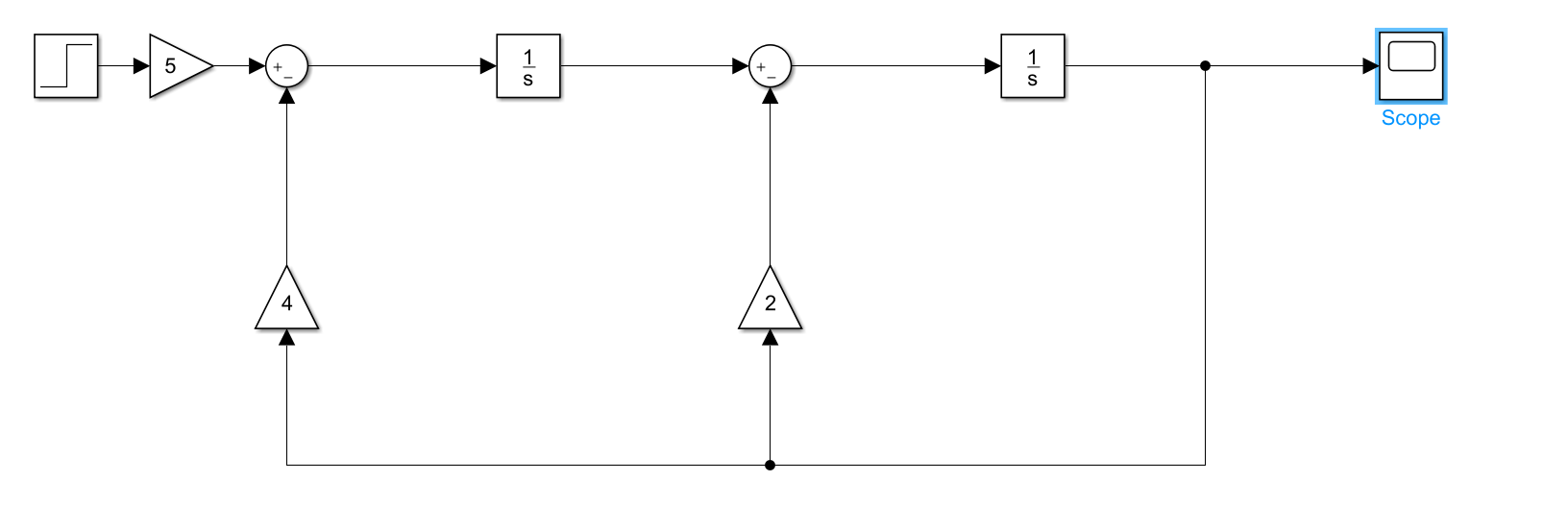


### Plot:

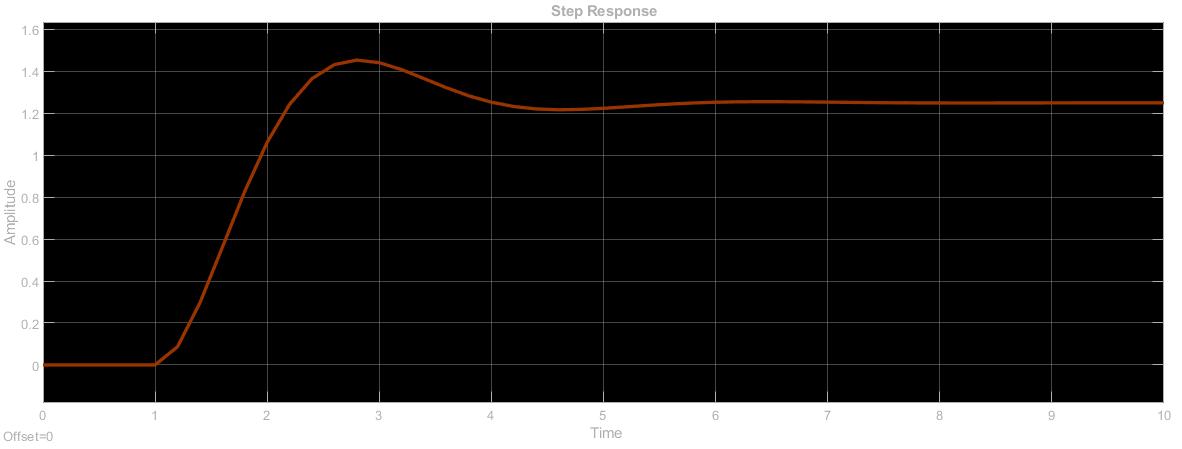


## **Step Response**

### Simulation:

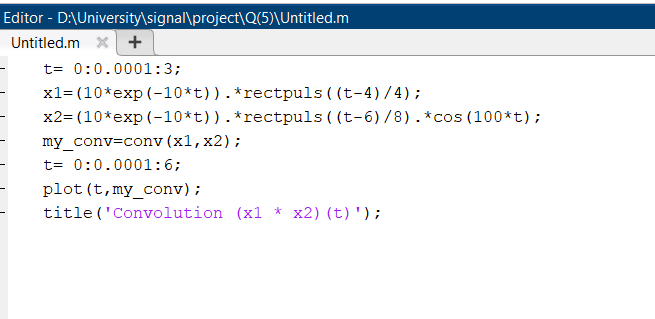


### Plot:

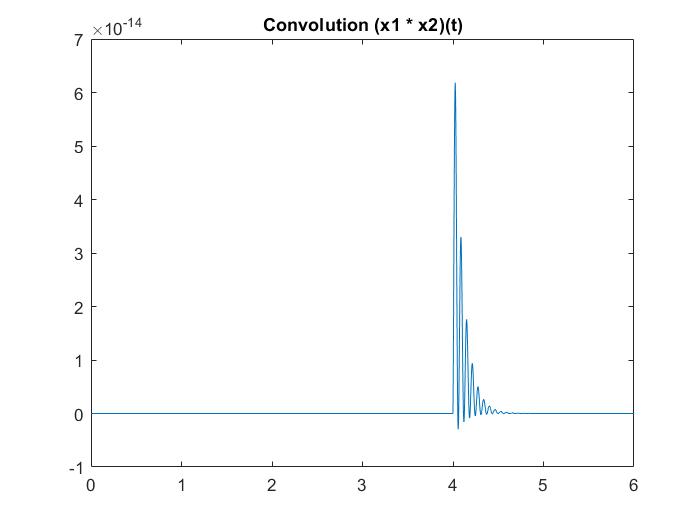


# Question 5:

## Code:

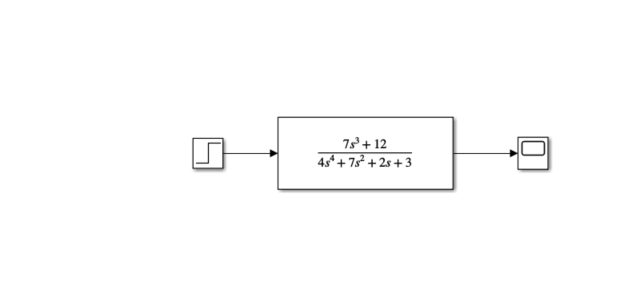


## Plot:

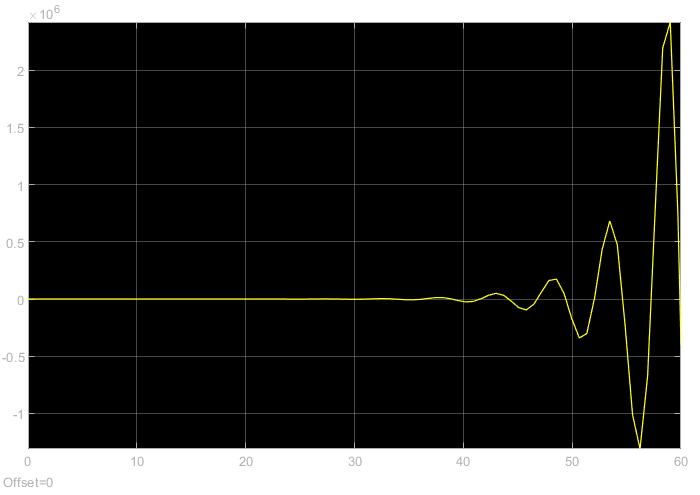


# Question 6:

## Simulation:

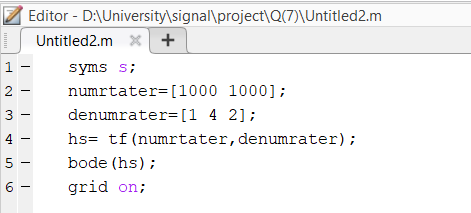


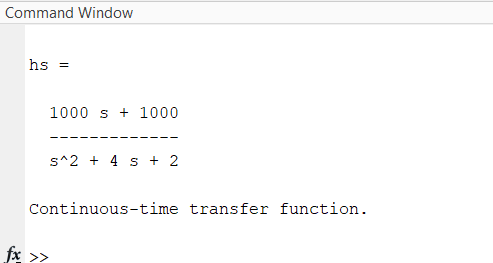
## Plot:



# Question 7:

## Code:





## Plot:

