QUESTION 4

**A**

function Y = test (t)

Y = dsolve('D2y + 5\*Dy + 6\*y = cost', 'y(0)=5', "y'(0)=3",'t')

T = [0:0.1:50]

yn = subs(Y,T)

plot(T,yn)

**B**

commandwindow

clear

clc

syms X Y t

X = ('Dx + 3\*y = exp(-2\*t)')

Y = ('Dy + 3\*x = exp(2\*t)')

X\_initial=('X(0)=30')

Y\_initial=('Y(0)=30')

[x,y] = dsolve(X,Y,X\_initial,Y\_initial)

V = [0:0.1:5]

Xn = subs(X,V)

Yn=subs(Y,V)

**plot**(V,Xn,V,Yn)

**C**

function I = test1(t)

syms L R E

 I = dsolve('L\*Di + R\*I = E','i(0)=0')

**D**

***t is equal to π***

syms k t w a

laplace(k\*exp(-a\*t)\*cos(w\*t))

**E**

syms x s

ilaplace(x/(s^2 + 10\*x\*s + 24\*(x^2)))