Question 4a



The code for 4a



Question 4b Code and solution



Question 4c Code and solution



Question 4d Code and Solution



Question 4e Code and solution



CODES

4a

commandwindow

clear

clc

close all

syms t

Y = dsolve('D2y+5\*Dy+6\*y=cos(1\*t)','y(0)=5','Dy(0)=3')

pretty(Y)

tn =[0:0.1:50]

Yn = subs(Y,tn)

figure (1)

plot(tn,Yn)

xlabel('t(min)')

ylabel('y')

title('Graph showing Relationship between y and t')

grid on

grid minor

axis tight

4B

commandwindow

clear

clc

close all

syms F A

F1='DF + 3\*A = exp(-2\*t)'

F2='DA - 3\*F = exp(2\*t)'

cond1='F(0)=30'

cond2='A(0)=30'

[Fx,Ay] = dsolve(F1,F2,cond1,cond2 )

pretty(Fx)

pretty(Ay)

4C

commandwindow

clear

clc

close all

syms t R E L

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

pretty(I)

4D

commandwindow

clear

clc

close all

syms t p a w

f = p\*(exp(-a\*t))\*(cos(w\*t))

o = laplace (f)

pretty(o)

4E

commandwindow

clear

clc

close all

syms s pi

F(s) = ilaplace(pi/((s^2)+(10\*pi\*s)+(24\*pi^2)))

pretty( F(s))