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17/ENG01/019

ENGINEERING MATH TEST MATLAB

Question (3)

A)

commandwindow

clear

clc

close all

syms t

syms f

syms a

syms k

ft= k\*exp(-a\*t)\*sin(5\*2\*(22/7)\*f\*t)\*cos(3\*2\*(22/7)\*f\*t)

fs= laplace(ft)

B)

commandwindow

clear

clc

close all

syms s

fs= 3.142/(s^2+15\*3.142\*s+24\*3.142^3)

ft=laplace(fs)

Question (1)

commandwindow

clear

clc

close all

syms n(t)

ode=diff(n,t,2)-diff(n,t,1)-12\*n==144\*n^3+12.5

rashida=diff(n,t)

wunmi=[n(0)==5,rashida(0)==-0.5]

wewe=dsolve(ode,wunmi)

t=0:0.1:1.5

fplot(t,wewe)

Question (2)

Separately;

commandwindow

clear

clc

close all

syms y(t) x(t)

ode1=diff(y)==exp(-2\*t)+2\*x

ode2=diff(x)==exp(-1\*t)-y

odes=[ode1:ode2]

s=dsolve(odes)

ysol(t)=s\*y

xsol(t)=s\*x

fplot ysol

hold on

fplot xsol

grid on

grid minor

axis tight

Legends('ysol','xsol','communication1',communication2')

Together; commandwindow

clear

clc

close all

syms y(t) x(t)

ode1=diff(y)==exp(-2\*t)+2\*x

ode2=diff(x)==exp(-1\*t)-y

odes=[ode1:ode2]

s=dsolve(odes)

ysol(t)=s\*y

xsol(t)=s\*x

fplot (ysol,xsol)

grid on

grid minor

axis tight