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18/Eng06/078
Eng 381

Question 4a
Command window
clc
clear
clear all

Syn(net)
eqn - diff(net,2) - diff(net) - 12n = 144 + (+n3) + 12.5
Cond ans) -5 diff(net,2) = -0.5
Jlol = dsolve (eqn, cond)
t - 0:0.1:1.5
Jem = subs(Jlol)
fplot (Tuogo)
grand on
lengend (Tuogo, location 'best)

4C

1) Command window

```
clc
clear
close all

syms t s w x k a
x = k*exp(-a*t)*sin(5*w*t)+cos(3*w*t)
f = laplace(x, t, s)
simplify(f)
pretty(ans)
```

4) Command window

```
clc
clear
close all

syms t s
f = pi*t/((s^2)+15*pi*s + 24*(pi^3))
ilaplace(f)
simplify(ans)
pretty(ans)
```

4b

- Command window

```
clc
clear
close

eqns x(t) y(t)
eqn1 diff(y,t)-2x = exp(-2t);
eqn2 diff(x,t)-y-exp(-t);
eqn = [eqn1, eqn2]
cond = x(0) == 0, y(0) == 0
Ans = dsolve(eqns,cond)
xsol(t) = Ans.x
ysol(t) = Ans.y
```

- Visualizing the solution on graph seperately continue with

```
fplot(xsol)
fplot(ysol)
grid on
legend('xsol','location','best')
legend('ysol','location','best')
```

- Visualizing the solution on graph together continue

```
fplot(xsol)
hold on
fplot(ysol)
grid on
legend('xsol','ysol','location','best')
```