

4a: Command window

```
close all
```

```
clear
```

```
clc
```

```
syms n(t)
```

```
eqn = diff(n,t,2) - diff(n,t) - 12*n == 144*t^3 + 12.5;
```

```
dn = diff(n,t)
```

```
cond = [t(0)==0, n(0)==5, dn == -0.5];
```

```
xsol = dsolve(eqn, cond)
```

ü  $t = [0:0.1:15]$

```
bing = sub(xsol, t)
```

```
plot(t, bing)
```

4b: command window

```
close all
```

```
clear
```

```
clc
```

Syms y(t), x(t).

ODE1 = diff(y,t) - 2\*x == exp(-2\*t)

ODE2 = diff(x,t) + y == exp(-t)

ODES = (ODE1, ODE2)

YSOL = dsolve(ODES)

Cond1 = (x == 0)

Cond2 = (y == 0)

Cond = (Cond1, Cond2)

XSOL = dsolve(ODES, Cond)

(XSOL, YSOL) = dsolve(ODES, Cond)

XSOL(t) = XSOL

YSOL(t) = YSOL

plot(XSOL)

hold on

plot(YSOL)

grid on