Assignment

(a) Command window

```
clear all
clc
sym n t

Y = "D2n - An - 12n = 144*t³ + 12·5"
cond = [t=0, n≥6, Dn = -0·5)
dsolve (Y, cond)

t = 0: 0·01 : 1·5'
plot (Y, t)
```

b) $\dfrac{dy}{dx} - 2x = e^{-2t}$

```
Y = Dy - 2x = e⁻²ᵗ
x = Dx + y = e⁻¹

dsolve ("D*y - 2x = e⁻²ᵗ , Dx + y = e¹)
dsolve (Y)
dsolve (x)
plot (Y, x)
```

c.) command window
    clear all
    clc
    sym w t s

f(t) = int [f(t) * exp[-s*t] * k*exp[
  -at] * sin * (5*w*t) cos* [3*w*t]

=> clc

b) f(s) = π / s² + 15πs + 24π³

factor (s^2 + 15*Pi*s + 24*Pi^3)
p = [2 3] ; roots_P = roots(P)