

OGAF JOSHUA IMHOAGENT

17/ENG02 1063

COMPUTER ENGINEERING.

2. Command window

clear

clc

close all

syms n(t)

$$\text{eqn} = \text{diff}(n, t, 2) - \text{diff}(n, t) - (12 * n) == (144 * (0) . ^ 3) + 12.5;$$

$$Dn = \text{diff}(n, t)$$

$$\text{cond1} = n(0) == 5;$$

$$\text{cond2} = Dn(0) == -0.5;$$

$$\text{conds} = [\text{cond1} \text{ cond2}];$$

$$\text{nsol}(t) = \text{dsolve}(\text{eqn}, \text{conds})$$

$$t = [0:1.5:15]$$

$$n = (74 * \exp(-3 * t)) / 21 + (141 * \exp(4 * t)) / 56 - 25 / 24$$

plot(n, t)

xlabel('X axis')

title('My graph')

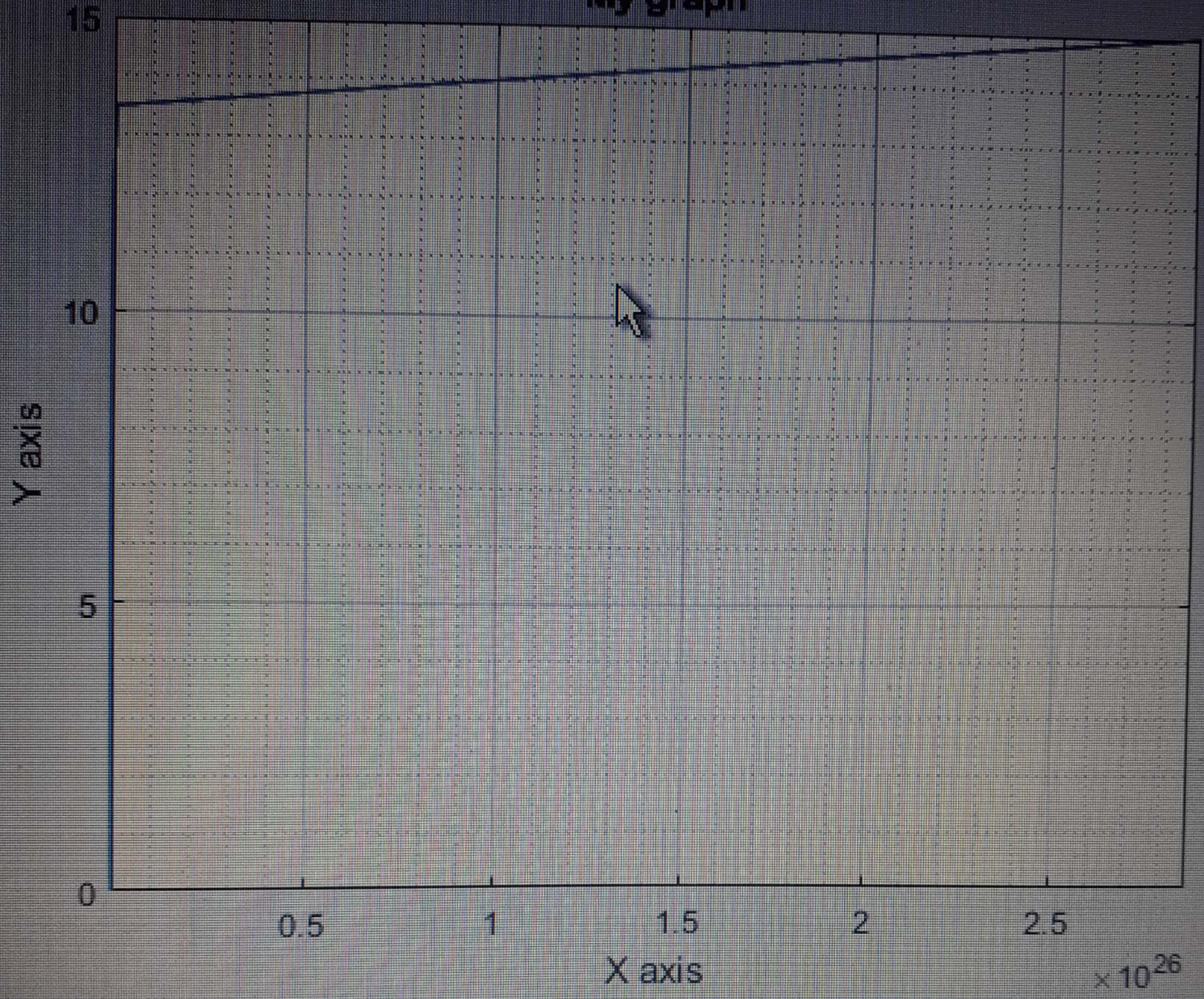
ylabel('Y axis')

grid on

grid minor

axis tight.

My graph



c) command window

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syms t k a w

$$f_t = k * \exp(-a * t) * \sin(5 * w * t) * \cos(3 * w * t)$$

$$f(s) = \text{laplace}(f_t)$$

$$f(s) = k * (w / (a + s)^2 + 4 * w^2) + (4 * w) / (a^2 + 64 * w^2)$$

ii) syms s

$$f_s = \pi / (s^2) + (15 * \pi * s) + (24 * \pi * s^3)$$

$$f_t = \text{ilaplace}(f_s)$$

Commandwindow

```
clear
```

```
clc
```

```
close all
```

```
syms x(t) y(t) A B Yy
```

```
A = [2 ; -1]
```

```
B = [exp(-2*t) ; exp(-1*t)]
```

```
Y = [y ; x]
```

```
Yy = [diff(y,t);diff(x,t)]
```

```
| Yy == (A*Y + B)
```

```
[xsol(t),ysol(t)] == dsolve(ode)
```

```
xsol(t) = simplify(xsol(t))
```

```
ysol(t) = simplify(ysol(t))
```

```
C = y(0) == [2;-1];
```

```
[xsol(t),ysol(t)] = dsolve(ode,C)
```

```
clf
```

```
f plot(ysol)
```

```
hold on
```

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