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ENG 381

17/ENGG02/045

Computer Engineering

4a)

Command window

clc

close all

Syms n(t)

D = diff(n,

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

Cond1 = D(0) == -0.5;

Cond2 = n(0) == 5;

Conds = (Cond1 Cond2);

dsol(t) = dsolve(ode, Conds);

dsol = simplify dsol(dsol(t))

tn = [0:0.1:1.5]

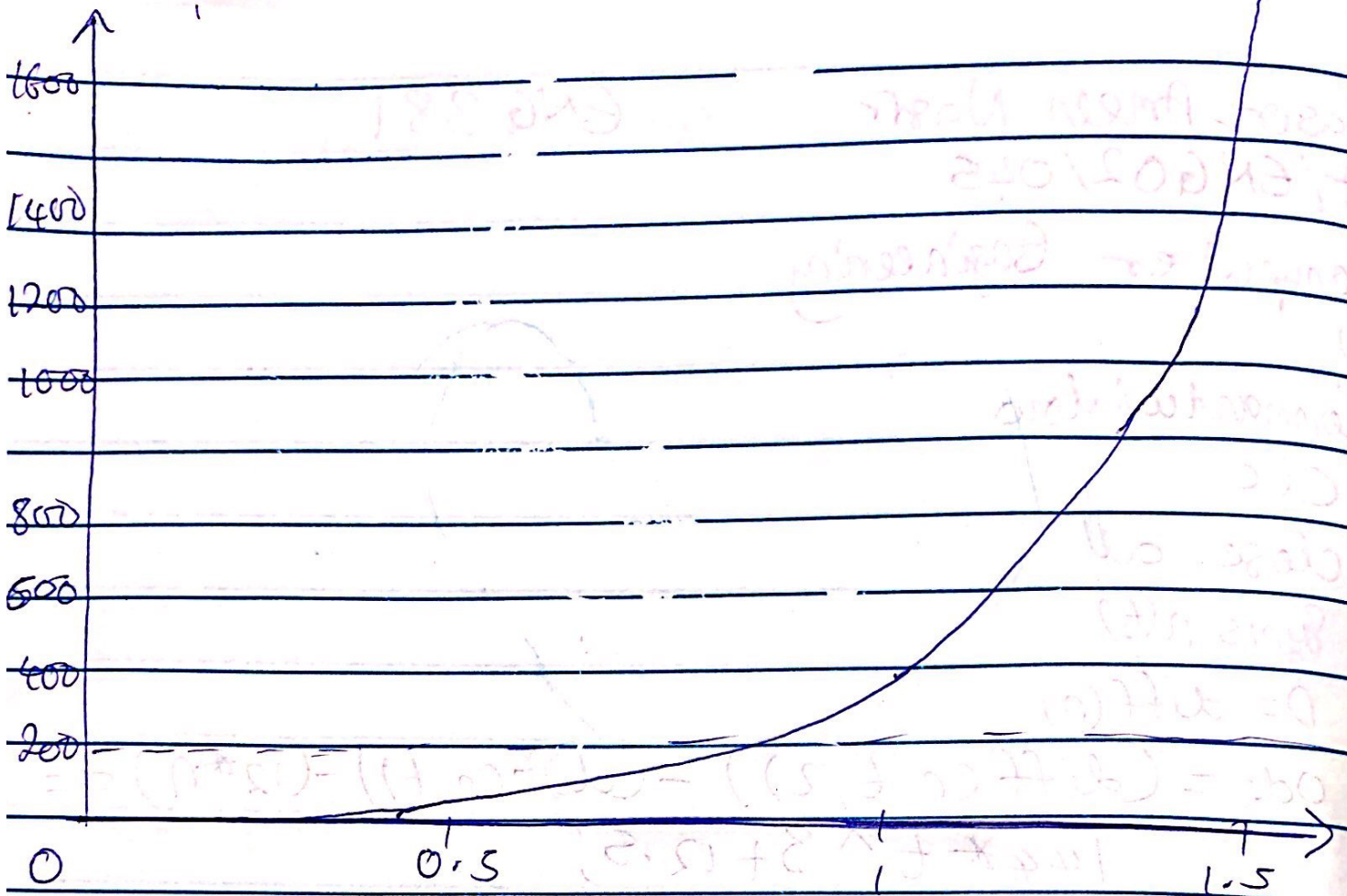
femny = subs(dsol, tn)

Plot(tn, femny)

grid on

grid color

axis tight



46) Command window

clear

clc

Syms k, w, t, s, f(t), f(s), a

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

$$F = \text{laplace}(C)$$

Command window

clear

clc

Syms t S

$$V = (3.142) / ((S^2) + 15 * 3.142 * S + 24 * (3.142^3))$$

$$F = \text{iLaplace}(V)$$

simplify (E)
pretty (ans)

4b. 1) Command window

clc

clear all

close all

Syms n(t) y(t)

$$\text{eqn 1} = \text{diff}(y, t) = 2^*x = \exp(-2^*t)$$

$$\text{eqn 2} = \text{diff}(x, t) = y = \exp(-t)$$

$$\text{eqn 3} = [\text{eqn 1} \quad \text{eqn 2}]$$

$$\text{Cnd} = x(0) == 0, \quad y(0) == 0;$$

$$\text{Ans} = \text{dsolve}(\text{eqns}, \text{cnd})$$

$$x \text{ sol}(t) = \text{Ans } x$$

$$y \text{ sol}(t) = \text{Ans } y$$

11.) F plot (x sol) (Separately)

F plot (y sol)

grid on

Legend ('x sol', 'Location', 'best')

Legend ('y sol', 'Location', 'best')

F plot (x sol) (Together)

hold on

(ABUAD), The Road to Intellectualism, Quality and Excellence

Fplot (y sol)

grid on

Legend (x sol, y sol, 'Location', 'best')