

EBOH FAVOUR
COMPUTER ENGINEERING
(81ENSG02105)

4c

- 1) Command window
- 2) clear
- 3) clc
- 4) Syms k w t s f(t) f(s) ;
- 5) z = k' exp(-a't)' sin(5'w't)' cos(3'w't)
- 6) ~~Kaplan~~ z = laplace(z, t, s)
- 7) simplify (z) 8) pretty (ans)

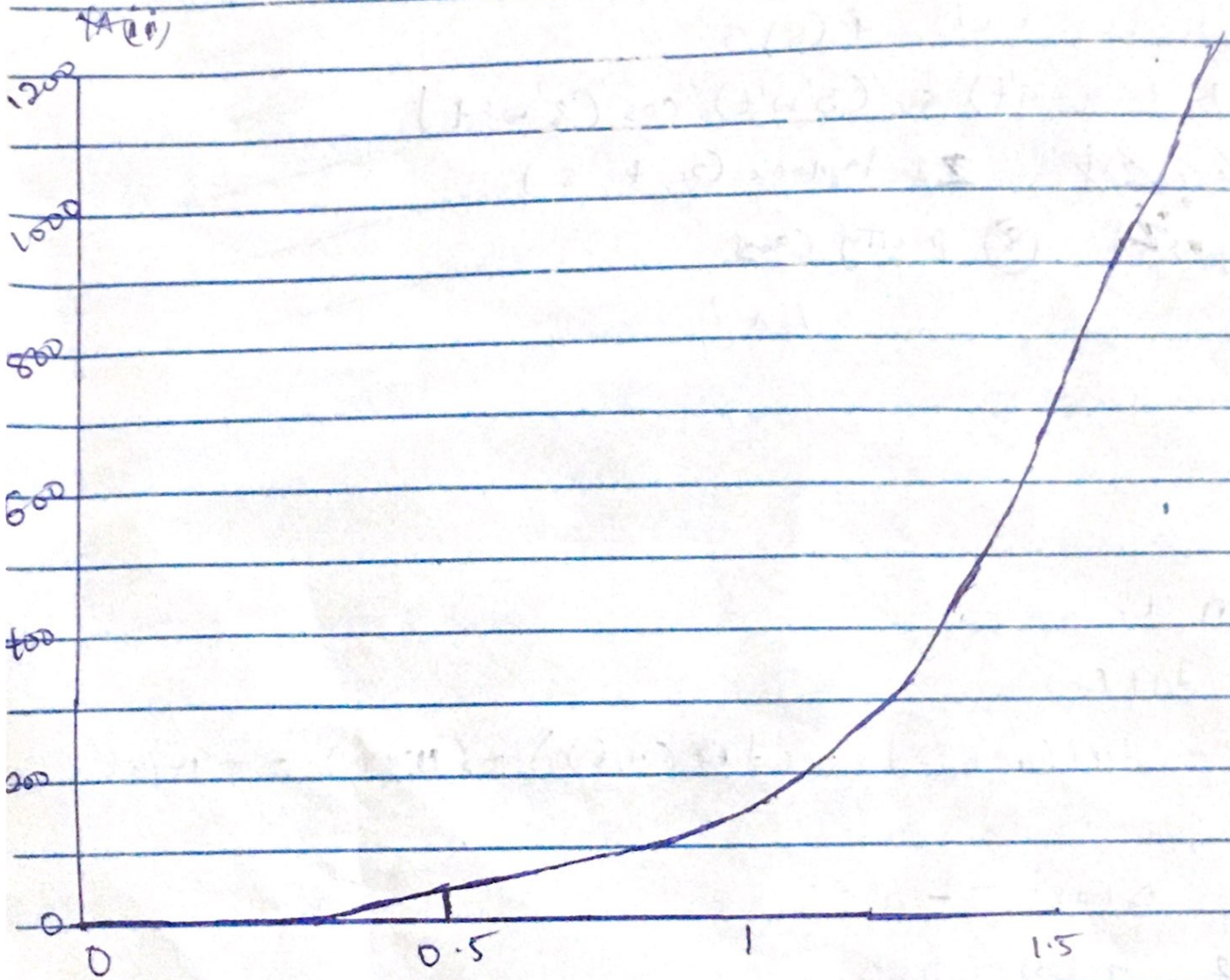
HA(i)

- 1) Command window
- 2) clc
- 3) close all
- 4) syms A(t)
- 5) D = diff(n)
- 6) ode = (diff(n, t, 2)) - (diff(n, t)) - (D*n) z = 144*t^3 + 12.5;
- 7) Cond1 = D(0) = -0.5;
- 8) Cond2 = n(0) = 5;
- 9) Conds = [Cond1 Cond2];
- 10) dsol(t) = dsolve(ode, Conds);
- 11) dsol = simplify(dsol(t))
- 12) tn = [0:0.1:1.5]
- 13) Favours = subs(dsol, tn)

14) plot (tn, ~~favour~~)

15) grid on

16) legend (favours, location: best)



~~4c(i)~~ 4c(ii)

- 1) Command window
- 2) clear
- 3) clc
- 4) Syms f(s) s
- 5) u = (3.142) / ((s^2) + 15 * 3.142 * s + 24 * (3.142^3))
- 6) ~~laplace~~ laplace(u)
- 7) simplify(ans)
- 8) pretty(ans)

4b

- 1) Command window
- 2) clc
- 3) clear
- 4) close
- 5) Syms x(t) y(t)
- 6) eqn 1 = diff(y,t) - 2*x == exp(-2*t);
- 7) eqn 2 = diff(x,t) + y - exp(-t);
- 8) eqn 3 = [eqn 1; eqn 2]
- 9) cond = x(0) == 0, y(0) == 0;
- 10) RA Ans = dsolve(eqn3, cond)
- 11) x_sol(t) = Ans * x
- 12) y_sol(t) = Ans * y

ii) visualizing the solution on graph separately Contourline note

13) `plot(x sol)`

14) `plot(y sol)`

15) `grid on`

16) `legend('x sol', 'location', 'best')`

17) `legend('y sol', 'location', 'best')`

iii) visualizing the solution on graph together Contourline

13) `plot(x sol)`

14) `hold on`

15) `plot(y sol)`

16) `grid on`