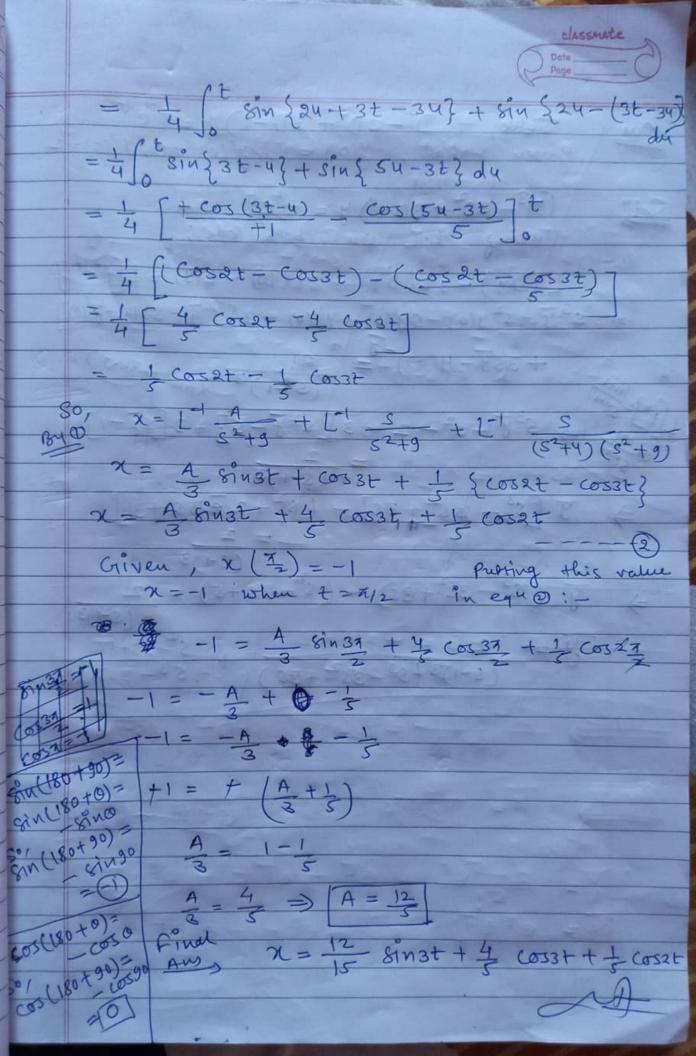
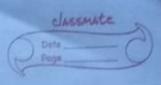


Que, Solve, (D2+9)x = cos2t if x(0) = 1 , x(\frac{7}{2}) = -1 (D+9) x = cos2tTaking Lot. on both Sides; $L[D^2(x)] + 9L(x) = L[\cos 2t]$ $5^2\bar{x} - 5x(0) - x'(0) + 9\bar{x} = 5$ 52 x - 5 - A + 9x = 5 * Siven, $\chi(0)=1$ but $\chi'(0)$ is no given in the Que: So assume that < x/(0) = A (S+9) x - (S+A) = ... $(S^2+9)\overline{\chi} = (S+A) + \frac{S^2+4}{S}$ $= \frac{A}{S^2+9} + \frac{S}{S^2+9} + \frac{S}{(S^2+4)(S^2+9)}$ Taking Tuver LT: - " " X = [1 A + [- 1 S + [- 1 S - 1]] "] " [(52+4)(5+3)] "] By boling (52+4) (52+9) Solving by Conwolution thm; Lite (52+4) = 1 8in2t (180 $L^{-1}\left(\frac{s}{s^2+9}\right) = \cos 3t$ 5(180 - (s²+4)(s²+9) = = 2 fo 8 u24 · Co 3 (t-4) de = 1 (+ 28in24. cos3 (+-4) d4





Que: Solve,
$$(D^3 - 3D^2 + 3D - 1)$$
 $y = t^2e^t$

Given $+lat$ $y(0) = 1$, $y'(0) = 0$, $y''(0) = -2$

Solve

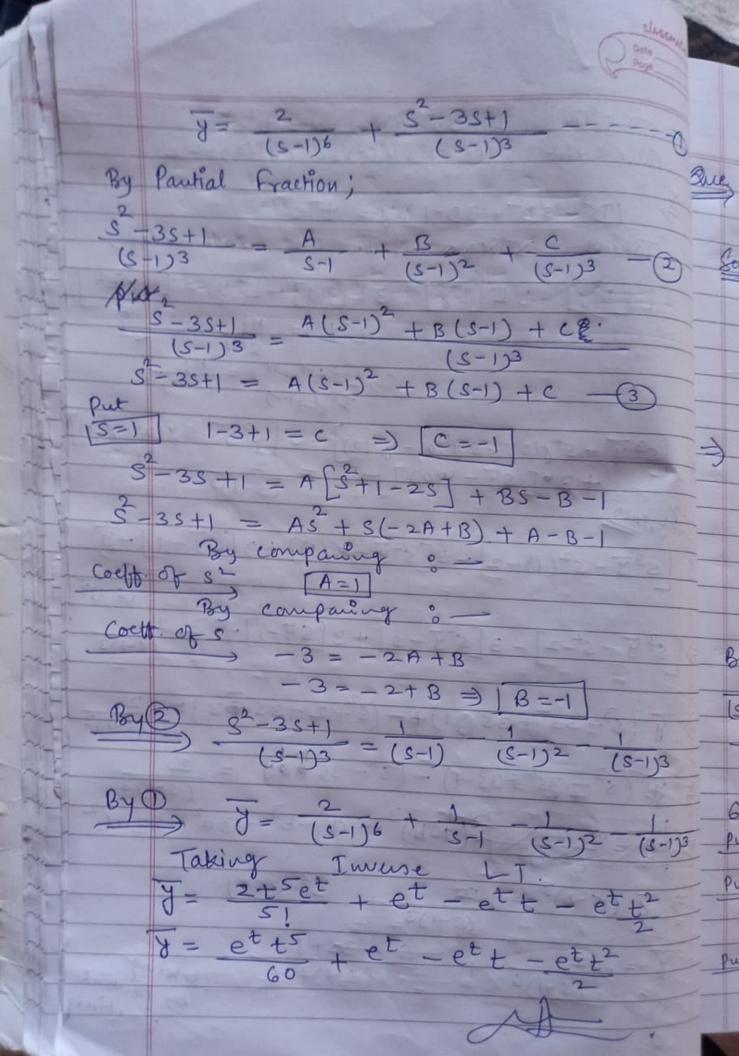
 $(D^3 - 3D^2 + 3D - 1)$ $y = t^2e^t$

Taking Twees L.T. on both bides;

 $L[D^3y] - 3L[D^3y] + 3L[D^3y] - L(y) = L[t^2e^t]$
 $L(t'') = n!$

So, $L[t''] = n!$

So, $L[t''] = n!$
 $So, L[t''] = n!$
 $So, L[t''$



Classmate Dote Page

Que Solve, y"+27"-y'-2y=0
given, y(0) = y'(0) = 0, y"(0)=6 Sol? y" + 2y" -y' - 2y = 0
Taking 1-T. [537-527(0)-57(0)-4"(0)]+ 2[52] - 57(0) - 7'(0)] - [59-70) -29=0 S37-6+257-27=0 J (53+25-5-27=6 $y = \frac{6}{s^3 + 2s^2 - s - 2}$ $\int_{s^3+2s^2-s-2=}^{s^3+2s^2-s-2=}$ (S-1)(S+1)(S+2) $y = \frac{6}{(s-1)(s+1)(s+2)}$ By Pantial fraction! $\frac{6}{(S-1)(S+1)(S+2)} = \frac{A}{S-1} + \frac{B}{S+1} + \frac{C}{S+2}$ $\frac{6}{(S-1)(S+1)(S+2)} = A(S+1)(S+2) + B(S-1)(S+2) + C(S+2) + C(S$ C(s-1)(s+1) (S-1) (S+1) (S+2) 6 = A(S+1)(S+2) + B(S-1)(S+2) + C(S-1)(S+1) 6 = A (S+1)(S+2) 6 = A(2)(3) = |A = 1put s=+1 Put S=-1, 6=B(S-1)(S+2)6 = B(-1-1)(-1+2) $6 = -2B \Rightarrow B = -3$ 6 = c(S-1) (S+1) put s = -2 6= c(-3)(-1) =) [C=2

