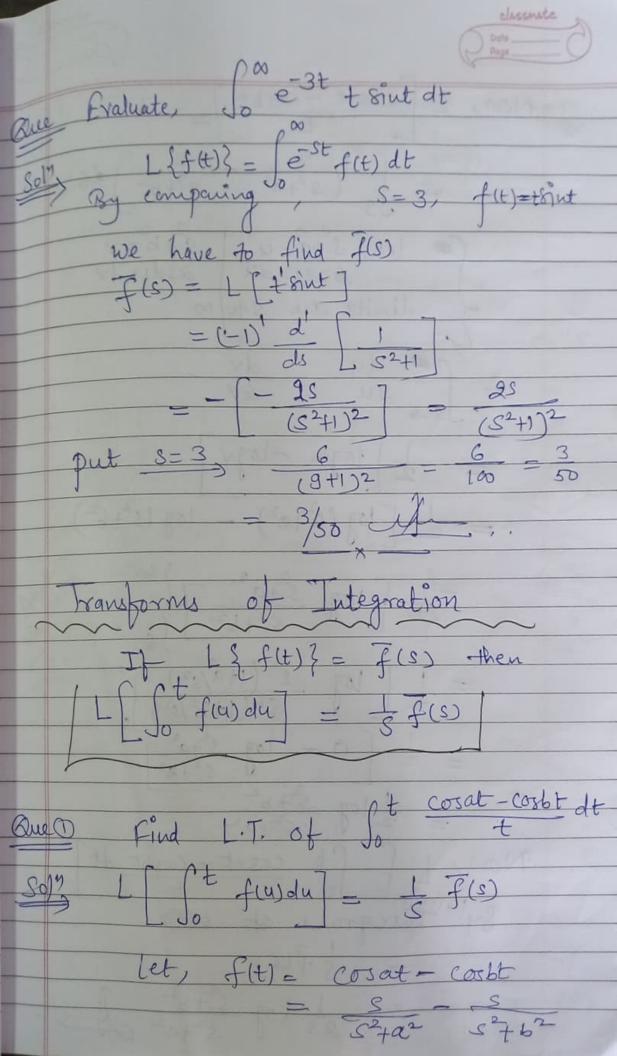
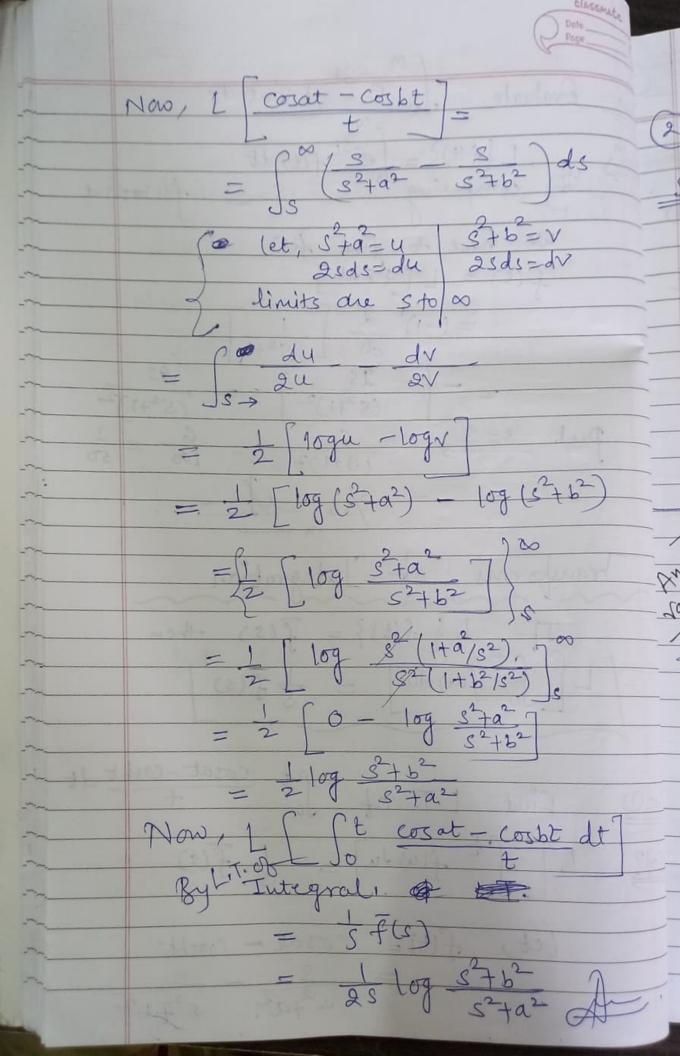
Evaluate, (telt cost dt Here, S=. S=2 and  $f(t)=t\cos t$ Now, we have to confind F(s) = L {f(t)} = L {t(ost)  $= (-1)^{1} \frac{d}{ds^{1}} \left[ \frac{s}{s^{2}+1} \right]$  $(S^{2}+1)\cdot 1 - S(25)$  $(S^{2}+1)^{2}$ put S=2 3/25



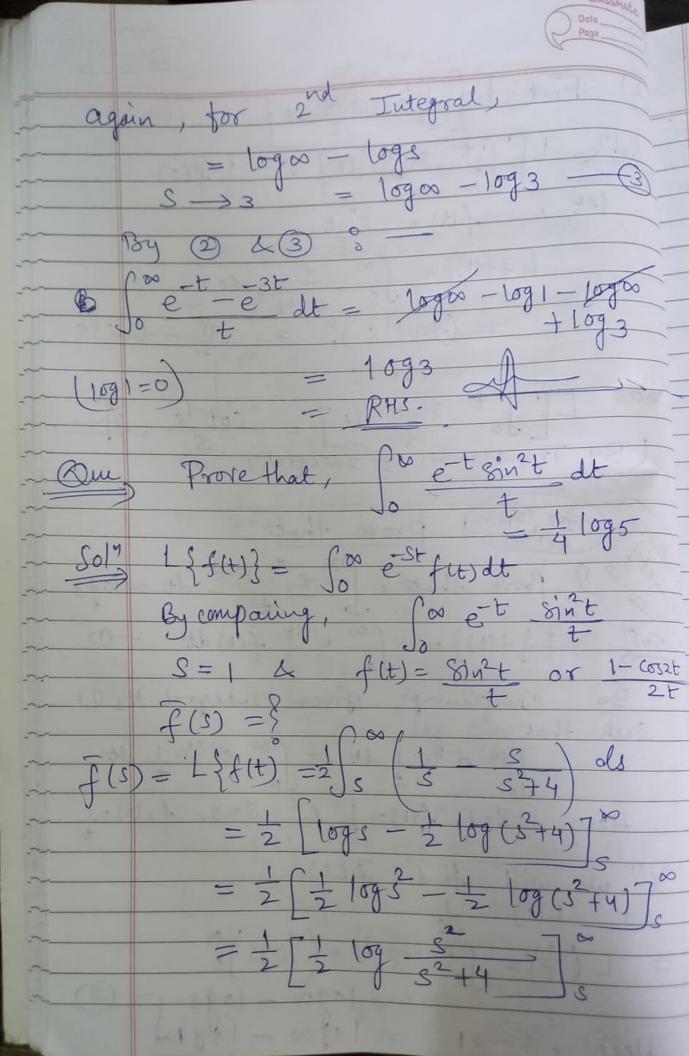


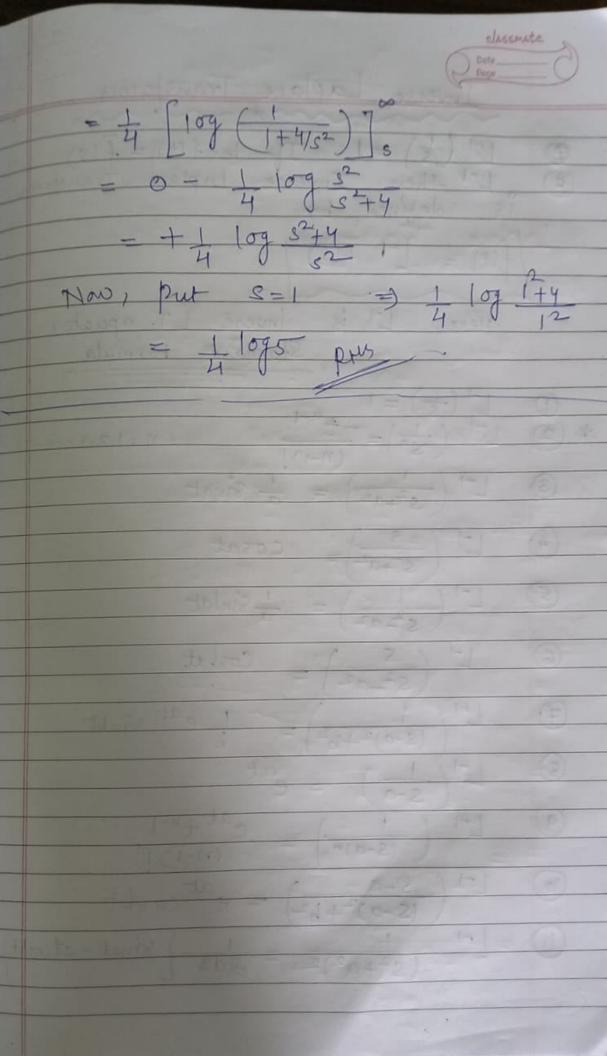
2) Find L St sint dt] soly [ So t dt] = 1 f(s) let, f(t) = sint  $L\{f(t)\} = \int_{S}^{\infty} \frac{1}{S^2 + 1} ds$ = (tan-15) == So, I [ St Sint dt] = cot-s A

(By Transforms of Integral) Type tion prove that  $(x^{n}, x^{n})$  Prove that  $\int_{0}^{\infty} e^{-t} e^{-3t} dt = \log 3$ By comparing given Integral by D Such that,

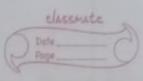
( ov et. 1 dt - for e-3t. 1 dt

t dt - for e-3t. 1 dt Here, S=1, f(t) = 1 & S=3, f2(t)=1 I've will find F(s)
So L(1) - 1  $\frac{1}{2}$  L( $\frac{1}{2}$ ) =  $\int_{S}^{\infty} \frac{1}{2} ds = (\log s)_{s}^{\infty}$ Here, s->1



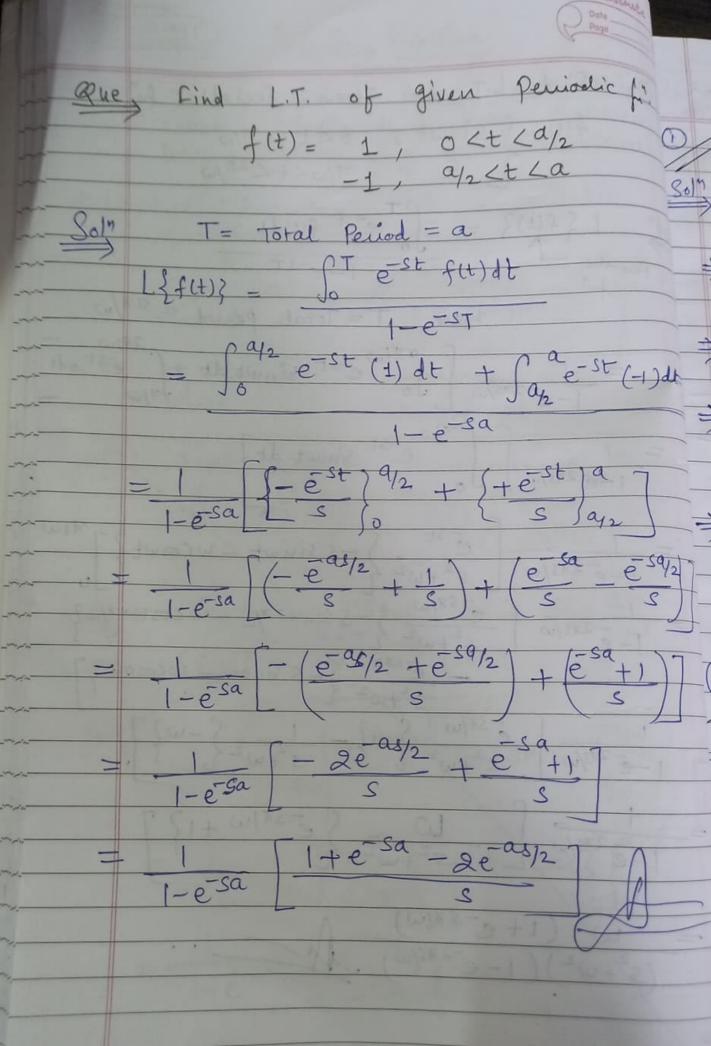


Periodic Function called "periodic function" it it repeat & its values in any particular interval. \* Laplace Transform of a periodic Then, / L{ f(t)} = Deviodic function = Test f(t)dt / 1-e-st where, T = Total Period. 1- Binsen

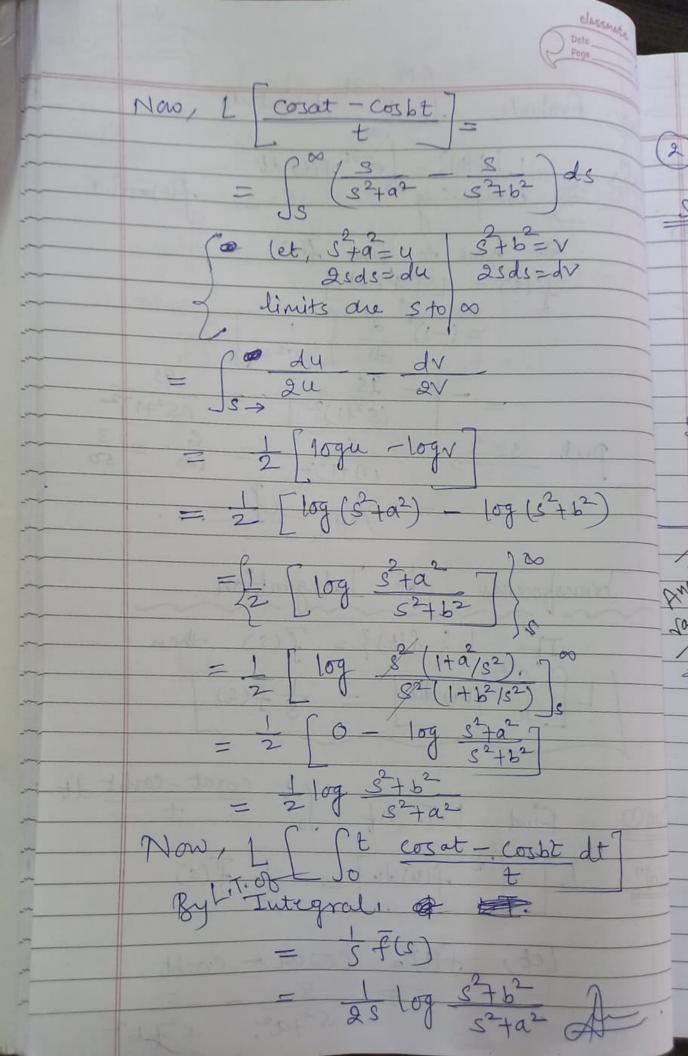


QD Find L.T. of given Periodic fu". f(t) = Sinwt, 6<t< 11/10

T/w<t<27/10  $|\{f(t)\}| = \int_{0}^{\infty} e^{-st} f(t) dt$ Here, T = Total period = 27/w = 1 1-e-275/w Jo e-st sinwt dt + jest odt = 1 1-\(\varepsilon\) 1-\(\varepsilon\) 1-\(\varepsilon\) 0 = 1 = est S-sinwt - wcoswt? 7 7 100  $= \frac{1 - 275/\omega}{1 - e^{-57/\omega}} \left\{ \frac{e^{-57/\omega}}{s^2 + \omega^2} \right\} - \frac{1 - e^{-57/\omega}}{s^2 + \omega^2} \left\{ \frac{-584\omega \times 7/\omega}{s^2 + \omega^2} - \frac{1 - e^{-57/\omega}}{s^2 + \omega^2} \right\}$  $\frac{1}{1-e^{-2\pi s/\omega}} \left\{ \begin{array}{c} e^{-S\pi/\omega} \\ S^2+\omega^2 \end{array} \right\} = \frac{1}{S^2+\omega^2} \left\{ -\omega \right\} \right\}$  $= \frac{1}{1 - e^{2\pi i / \omega}} = \frac{\omega}{5^2 + \omega^2} = \frac{e^{-5\pi i / \omega} + 1}{5^2 + \omega^2}$  $= \frac{\omega \left(1 + e^{-s} 7 l \omega\right)}{(s^2 + \omega^2) \left(1 - e^{-27 s l \omega}\right)}$ 



Fransforms of Integration If  $L_{s}^{2} f(t)_{s}^{2} = \overline{f}(s)$  then  $L_{s}^{2} f(u) du = \overline{f}(s)$ Find L.T. of Jo tosat-cosbt dt  $L \int_{0}^{t} f(u) du = \int_{0}^{t} f(s)$ let, f(t) = cosat = cost 52+a2 5°+b2



classaute Find STut de 1 sint f(2) 1et (tants) & of Integral)