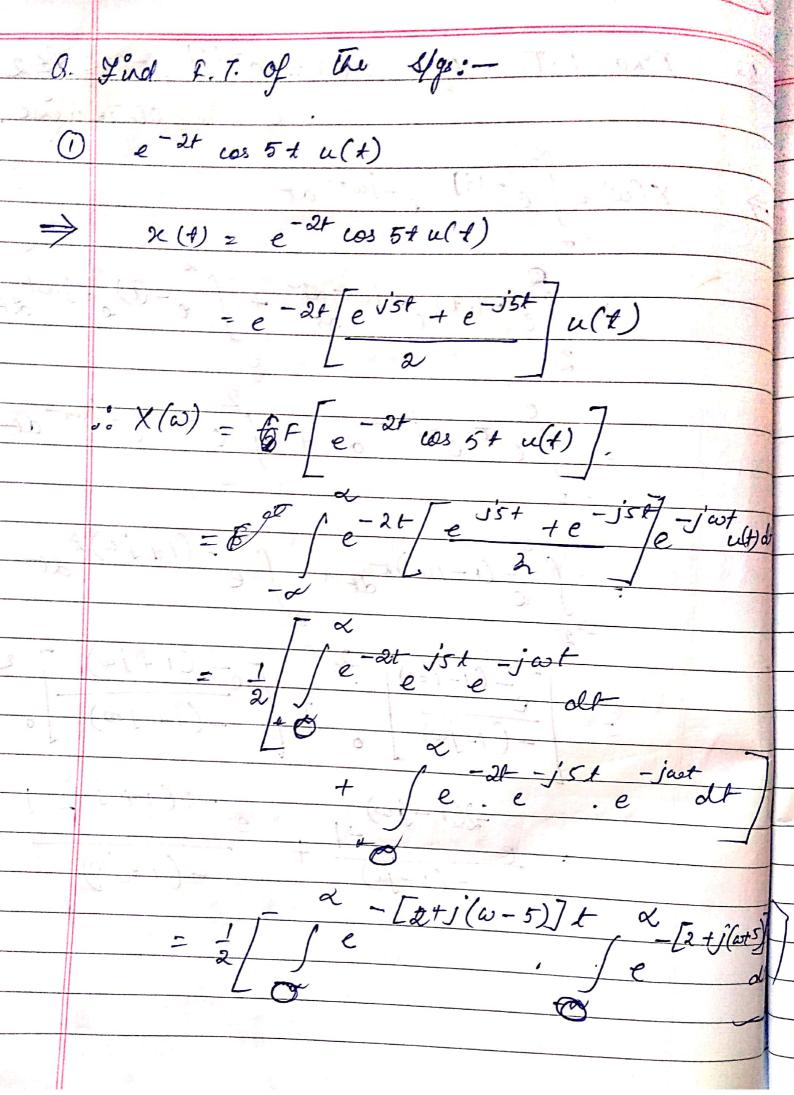


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8. Find F. T. of The Sys:
(1) e^-2t cos 5 t u(t)

2 te-at u(1).



$$= \frac{1}{2} \left[\frac{e^{-[2+j(\omega-5)]}k}{e^{-[2+j(\omega+5)]}k} + \frac{e^{-[2+j(\omega+5)]}k}{e^{-[2+j(\omega+5)]}k} \right]$$

$$= \frac{1}{2} \left[\frac{e^{-2}k}{e^{-2}k} - \frac{e^{-2}k}{e^{-2}k} - \frac{e^{-2}k}{e^{-2}k} - \frac{e^{-2}k}{e^{-2}k} \right]$$

$$= \frac{1}{2} \left[\frac{e^{-2k+j(\omega-5)}k}{e^{-2k+j(\omega+5)}k} + \frac{e^{-2k+j(\omega+5)}k}{e^{-2k+j(\omega+5)}k} \right]$$

$$= \frac{1}{2} \left[\frac{1}{(2+j\omega)^{2}+5^{2}k} + \frac{1}{(2+j\omega)^{2}+5^{2}k} \right]$$

$$= \frac{1}{2} \left[\frac{2+j\omega}{(2+j\omega)^{2}+5^{2}k} + \frac{1}{(2+j\omega)^{2}+5^{2}k} + \frac{1}$$

