11:41 AM Friday, November 26, 2021 Simultaneous linear différential equations with Constant (aefficients  $0 \text{ Solve } \underline{dx} + y = e^{t}$ 2 - 4 = -3 Solve dx +2y = Sin2t  $\frac{dy}{dt} - 2x = Gs2t$ Dx + y = et -> Û  $3 - 2y = t \rightarrow 2$   $(9x1 \Rightarrow 2x + y = e)$   $(2x2 \Rightarrow 2x + 2y = 2(t) = 1$  $\left( \mathcal{D}^{2}+1\right) Y=e^{T}-1$  $(D+1)Y = e^{t} - 1$   $A \cdot E = 0$  Typa!  $(e^{t} = 1)$ m=±L CF = A lost + B sint  $\widehat{P}\widehat{I} = \frac{1}{D^2+1} \left( e - e \right)$  $= A \left( ast + B \right) + \left( \frac{e^{t}}{2} - 1 \right)$ dy =-Asint+Bast+et x - dy = 1-スラナサ鉄 1 = (-A) sint + (B) Cost + et+t x = (Sint + Doost + et+t) 4 - 7 Dx + 24 = sin2t -2x + Dy = 6032t $(D^{2}+4)x=0$ m2+4=0 M = + 2cCF = A coss2t + B sin2t PI = 0 DC = A Gos 2+ +B sin 2+ 4=1 (Sin 2t - dx) = -2 A sin 2t + 2B Cos 2t y = 1 Sin2+ A Sin2+ - B Cos2t y= C 60521+ + D sin2t + 1/2 sin2t