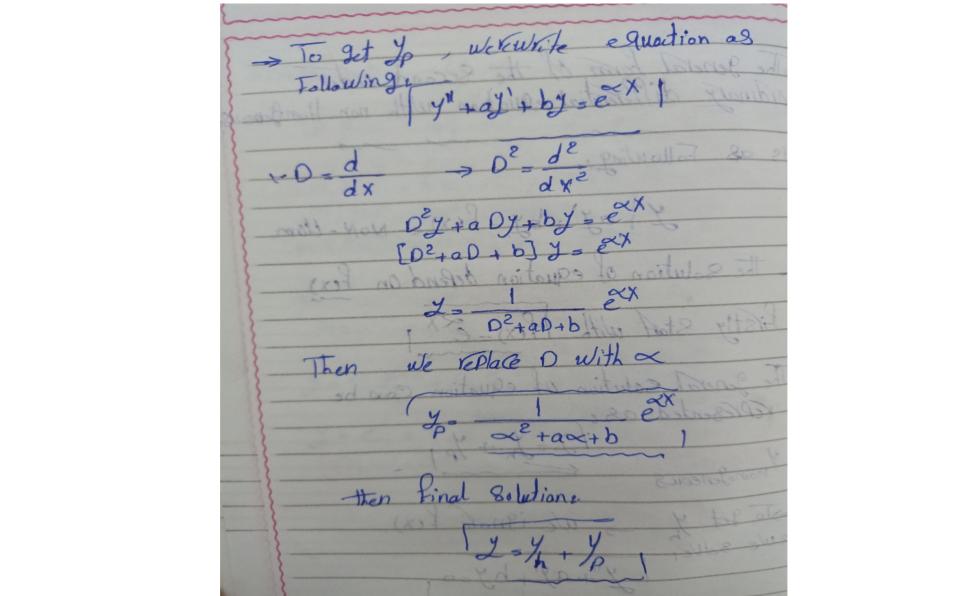
General Solution For Non-Homogeneous Ordinary Differential Equation With Constant Coefficient

The General Form Of Second Order Ordinary
Differential Equation Which is Non-Homogeneous

is as Following. 2"+ ay'+by = f(x) = NON-llam the solution of equation defend on fex - Firstly Start with Pexy=exx The general solution of equation can be Verresented as nomogeneous 30, We solver we ignole fin) y"+ay+by=a

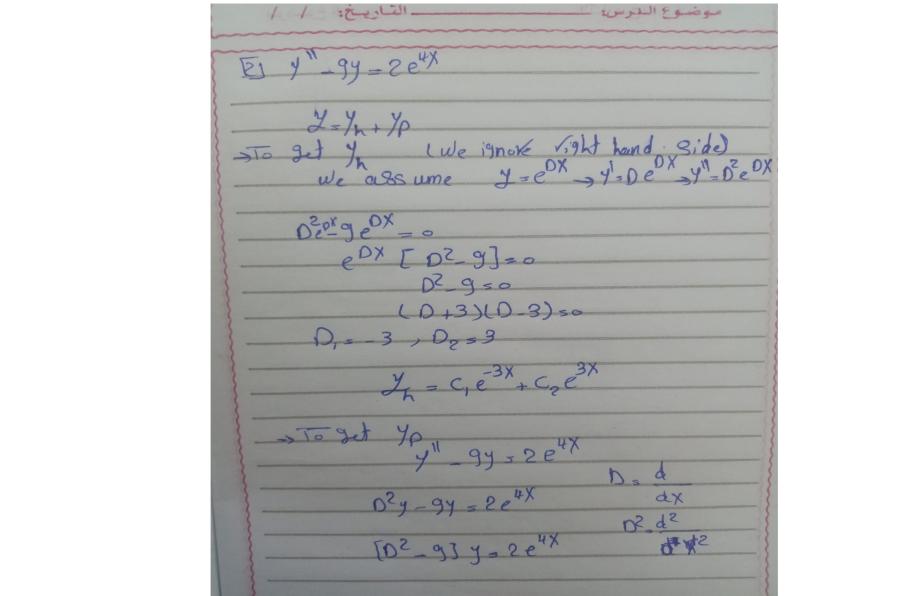


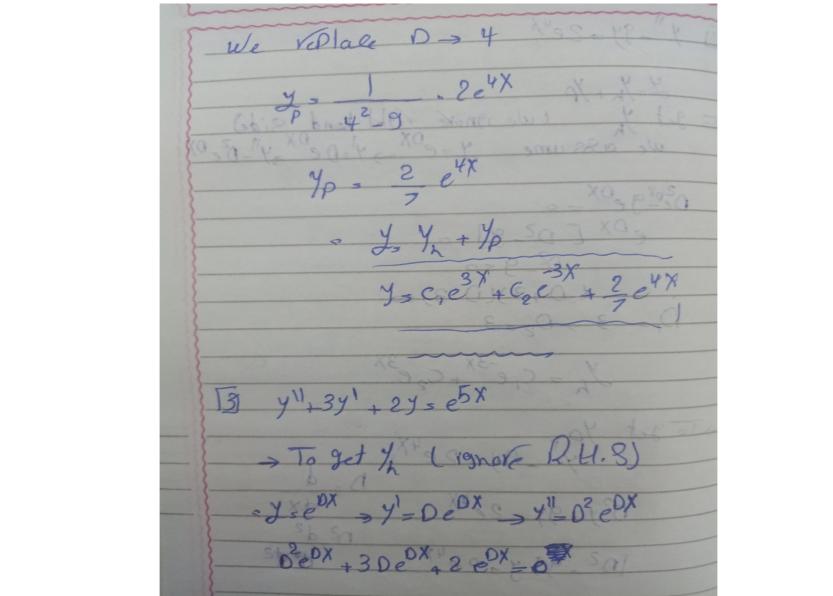
_التاريخ: / / Ex2. Solve Following ordinary differential equations 1) $y'' + y' - \delta = 8e^{3x}$ J=1/4 + 1/0 To get 1/h > (ignore right hand Side) y" y' -6=0 = (Homogeneous) we ossume that the Solution Can be represented as y=eDX (Dis Unknow) > y'=DeDX > y"= or Pox must be Determined) 0°epx + Depx - 6e DX =0 EDX [D2+ D- 6] =0 02+D-650 D = -3 $\frac{(D+3)(D-2)=0}{\sqrt{D}=2}$ $\frac{\sqrt{D}=2}{\sqrt{D}=2}$ $\frac{\sqrt{D}=2}{\sqrt{D}=2}$

التاريخ ١/ ١ Exe Solve Following ordinary differential equations 1) y"+ y'-6-8e3x To get Yh > (ignore right hand Side) y" y' - 6=0 = (Homogeneous) we ossume that the Solution can be représented as Y=eDX (Dis Unknow) > y'= DeDX > y"= 02 eDX must be Determined) 02eDX + DeDX - 6eDX =0 eDX[D2+D-6]=0 02+0-650 $D = -\frac{2}{3} \times D = 2$ $7 = C_1 e^{2X} + C_2 e^{3X}$

- To get yo y" + y' - 64 = 8 e3x D2y + Dy - 6y - 8 23x 102+0-6] y=83x - (8e3x) [0-0-6] Velace D-383 y = 10 18 e3x (32+3-6) 7 = e ex + c e + 4 e3x

ارياح:





$$e^{0X} [D_{+}^{2} + 3D + 2] = 0$$

$$0^{2} + 3D + 2 = 0$$

$$(D + 1) (D + 2)$$

$$D_{1} = 1, D_{2} = -2$$

$$y_{1} = c_{1} e^{-X} + c_{2} e^{-2X}$$

$$D_{2} = d_{3}$$

$$D_{2} + 3D + 2 = e^{5X}$$

$$D_{3} = d_{3}$$

$$D_{2} + 3D + 2 = e^{5X}$$

$$D_{3} = d_{3}$$

$$D_{2} = d_{3}$$

$$D_{2} + 3D + 2 = e^{5X}$$

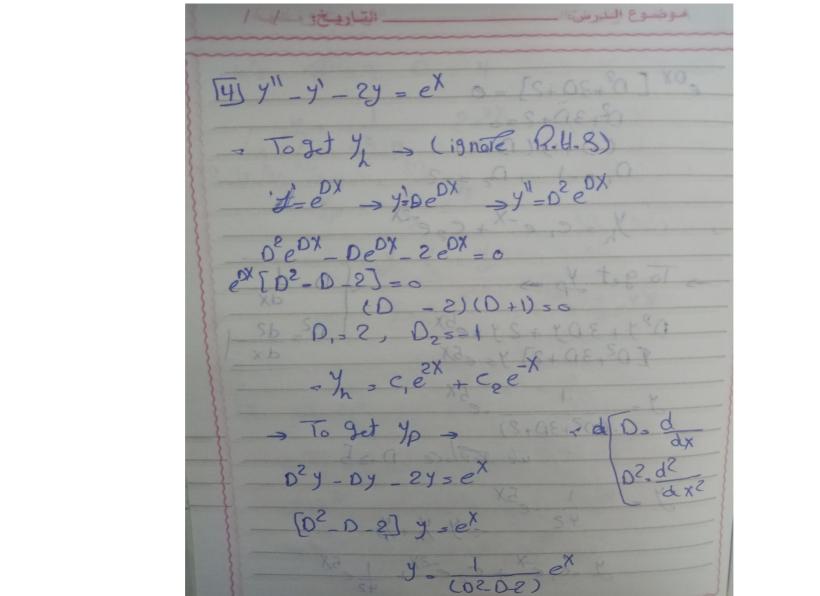
$$D_{3} = d_{3}$$

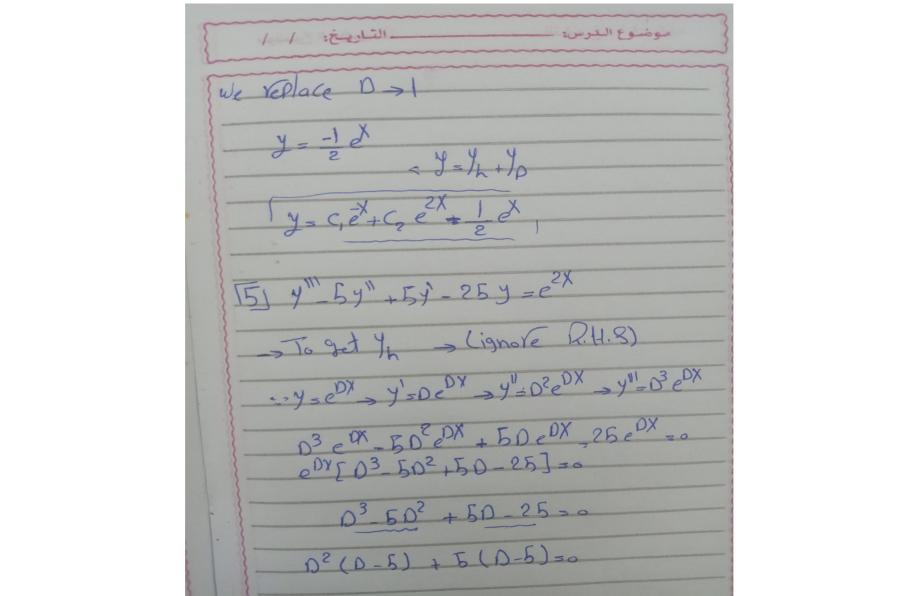
$$D_{4} = d_{3}$$

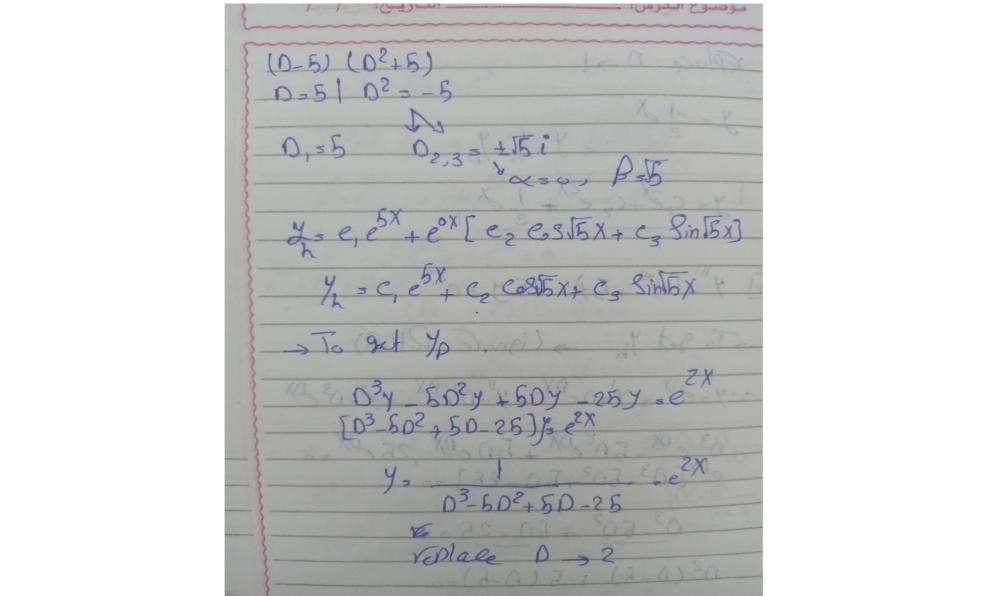
$$D_{2} = d_{3}$$

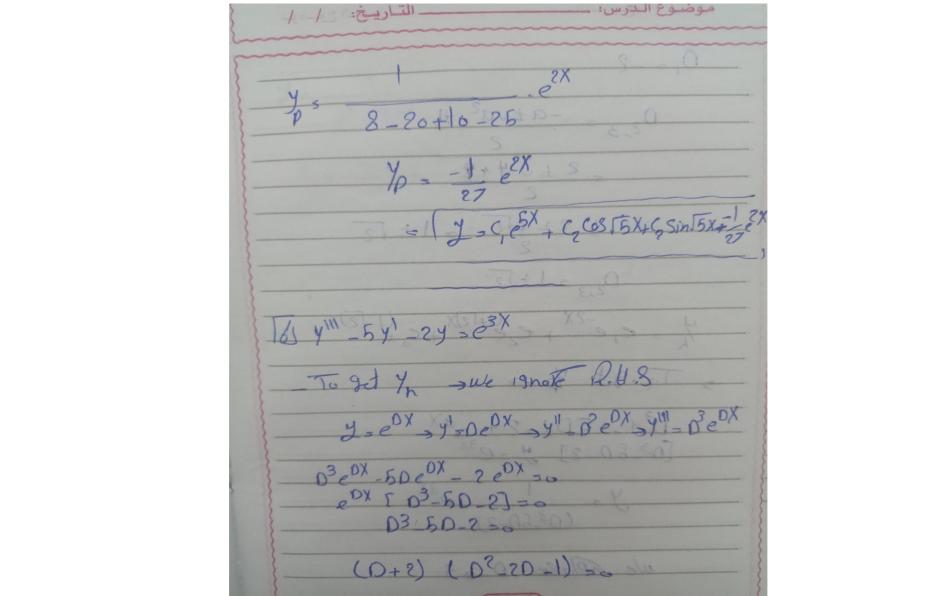
$$D_{3} = d_{3}$$

$$D_{4} = e^{5X}$$









$$D_{1} = -2$$

$$D_{2,3} = -a \pm \sqrt{a^{2} - 4b}$$

$$2 \pm \sqrt{3 + 4b}$$

$$2 + \sqrt{2} = 1 \pm \sqrt{2}$$

$$D_{2,3} = 1 + \sqrt{2}$$

$$D_{2,3} = 1 + \sqrt{2}$$

$$y_{1} = e_{1}e^{-2X} + e_{2}e^{-2X} + e_{3}e^{-2X}$$

$$y_{2} = e^{-2X} + e_{2}e^{-2X} + e_{3}e^{-2X}$$

$$D_{3}y_{1} = 5Dy_{2} + 2y_{3}e^{-3X}$$

$$D_{3}y_{2} = 5Dy_{2} + 2y_{3}e^{-3X}$$

$$D_{3}y_{1} = 5Dy_{2} + 2y_{3}e^{-3X}$$

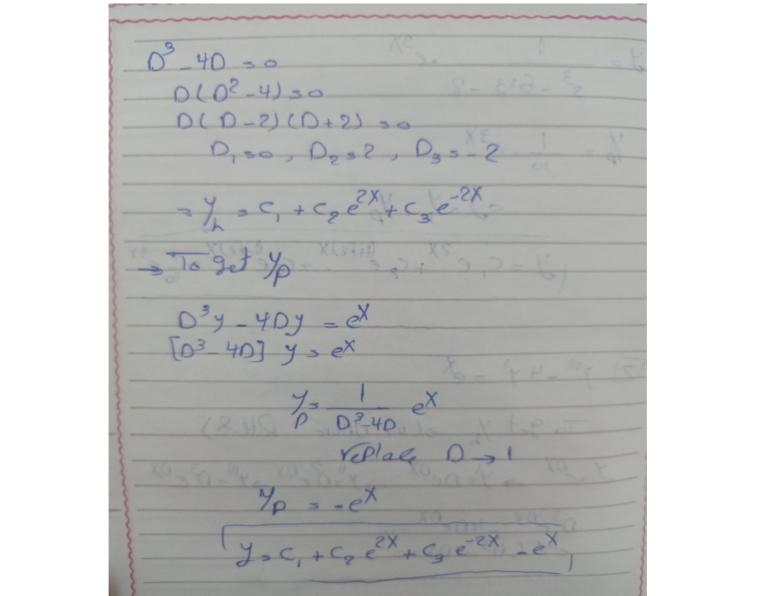
$$y_{2} = 1 + \sqrt{2}e^{-2X}$$

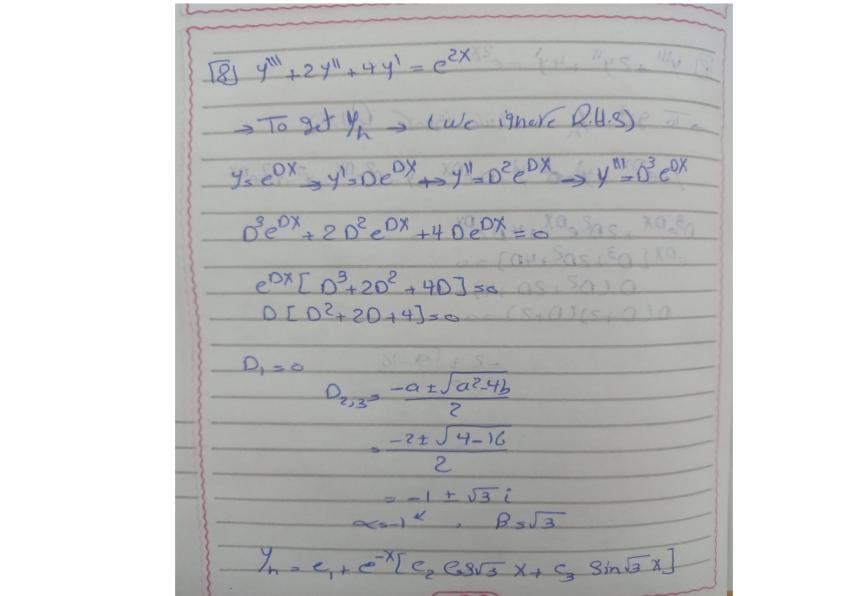
$$We Replace D_{3}3$$

$$\frac{y}{3^{3}-6x_{3}-2}$$

$$\frac{y}{4} = \frac{1}{10} e^{3x}$$

$$\frac{y}{4} = \frac{1$$





$$\int_{0}^{3} y + 2 D^{2} y + 4 D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D y = e^{2} x$$

$$\int_{0}^{3} + 2D^{2} + 4D$$