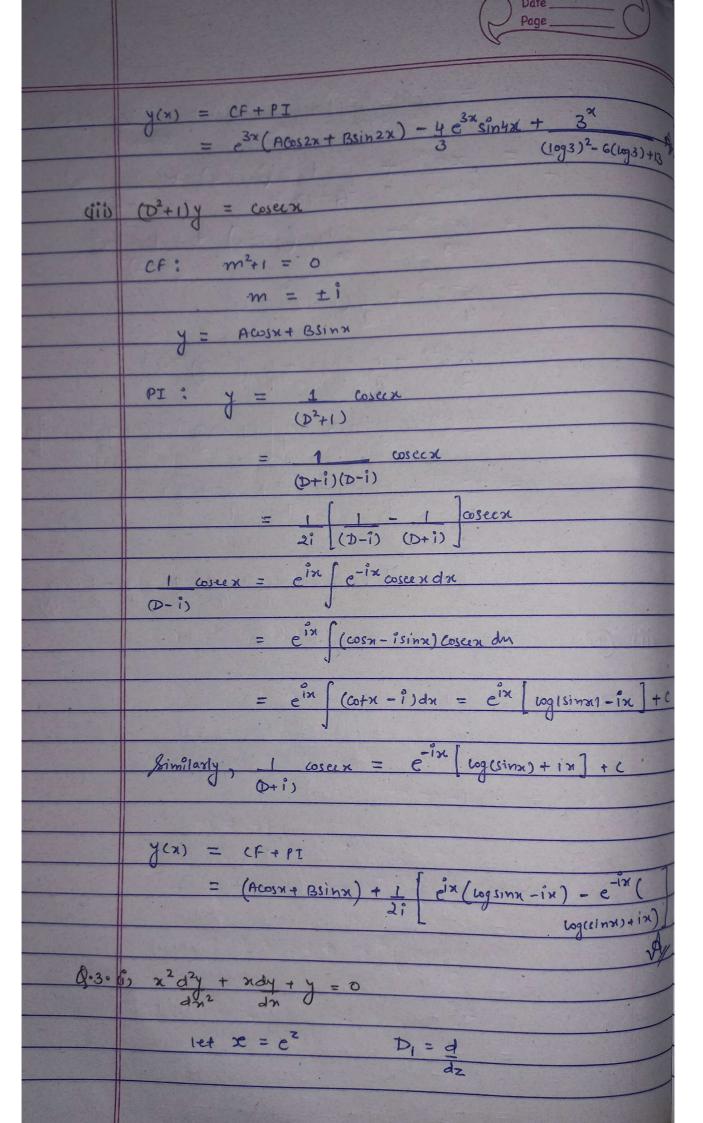


PI:
$$y = 1 e^{2x} + 1 e^{3} + 1 e^{$$



$$(D_1^2+1)y=0$$

$$m = \pm i$$

$$n^{2}y'' + 4\pi y' + 2y = 0$$

$$(D_1(D_1-1) + 4D_1 + 2)y = 0$$

$$(D_1^2 + 3D_1 + 2)y = 0$$

$$y(n) = ?$$
 $m^2 + 3m + 2 = 0$

$$m = -2$$
, $m = -1$

$$\frac{\gamma(n) = A + B}{n^2} \propto$$

(1)
$$x^2y'' - 5xy' + 9y = 0$$

By cauchy euler method:
$$x = e^{z}$$

$$(D_1^2 - 6D_1 + 9)^2 y = 0$$

$$(m+3)^2 = 0$$

$$m = 3,3$$

$$y(x) = Ae^{3z} + Bxe^{3z}$$

$$(1)$$
 (1) (1) (1) (1) (2) (1) (2) (3) (3) (3) (3) (3) (4)

$$(D_1(D_1-1)(D_1-2) + 3(D_1)(D_1-1) + D_1 + 1)y = S_{1}^2 + e^2$$

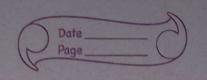
$$(D_1^3 - 3D_1^2 + 2D_1 + 3D_1^2 - 3D_1 + D_1 + 1)y = \sin z + e^2$$

$$m = -1, -\omega, -\omega^2$$

$$m = -1, +1-13i, +1+13i$$

$$y(n) = Ax + x^{1/2} \left(A\cos\left(\frac{3}{2}\log n\right) + B\sin\left(\frac{3\log n}{2}\right) \right)$$

PI:
$$y = 1 \sin z + 1 e^{z}$$
 (D_1^3+1) (D_1^3+1)



$$\frac{y(n) = 1}{(1-D_1)} \frac{\sin z + 1e^z}{2}$$

$$= (1+D_1)^2 \sin 2 + 1e^2$$

$$1-D_1^2 \qquad 2$$

=
$$(1+D_1+b_1^2+D_1^3+...)+ |1e^2$$

= $(\sin/2 + \cos/2 - \sin/2 - \cos/4 + \sin/2 + c/4)$

$$= \frac{\sin z + \cos z + 1e^z}{2}$$

$$= (1+D_1) \operatorname{Sinz} + 1e^{2}$$

$$= \frac{\sin z + \cos z}{2} + \frac{e^z}{2}$$

$$y(n) = CF + PI$$

$$= Ax + x^{1/2} \left(A\cos\left(\frac{3\log x}{2}\right) + B\sin\left(\frac{3\log x}{2}\right)\right) - \frac{1}{2}$$

singlogu) + cos(wgn) + x Ay