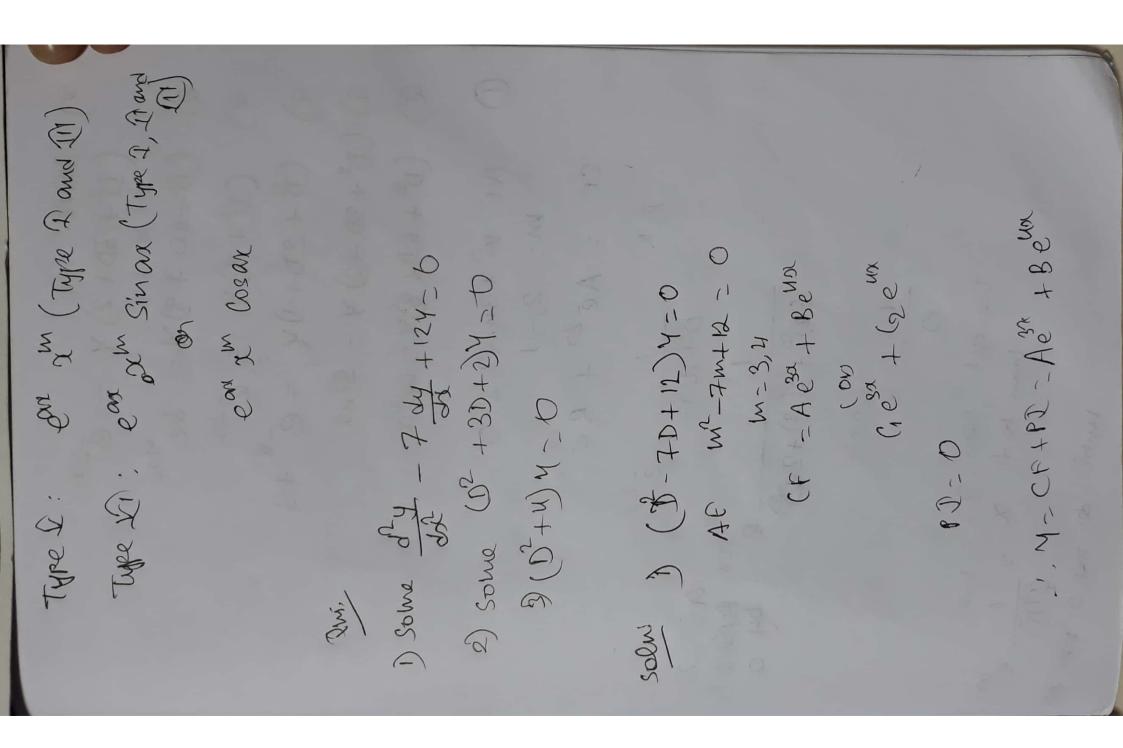
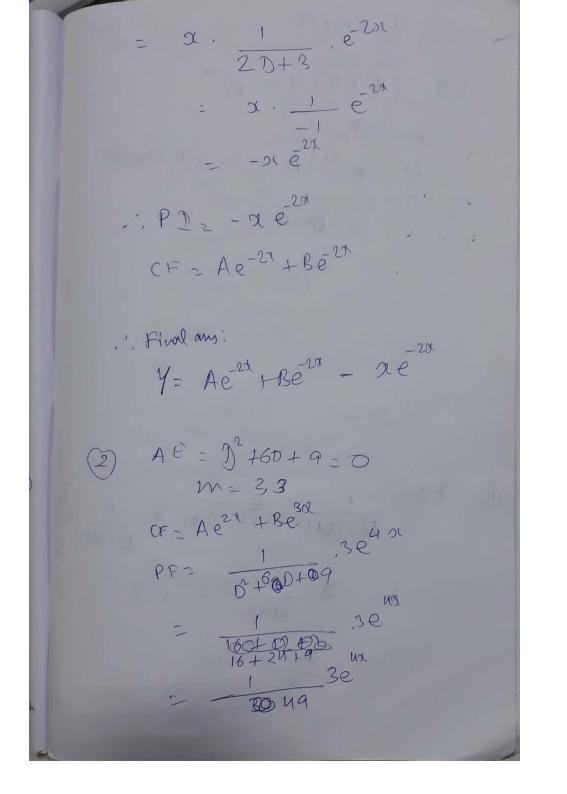


9f m=11 CF= ea (A+B) or ea (Aa+B) of m= 2 ± 31 x=2,3CF = e2a (A Cos3a + B sin3a) CF = ex (A Coepa + BSin Ba) (general) CF - Find a root and classify its root (Complimentary function). DWHEN KOOP ONE Particular Rutequal: Type I: pax Type I : Sin as (on) Cos as Type (1): 5cm Type I in and I Committed)



a) Solve
$$(D^{2}+3D+2) Y = e^{2\alpha}$$

$$(D^{2}+6D+9)Y = 3e^{\alpha}$$
a) 
$$(D^{2}+6D+9)Y = e^{2\alpha}$$
a) 
$$(D^{2}+3D+2) Y = e^{\alpha} +3$$
a) 
$$(D^{2}+6D+8)Y = 6x^{2}\alpha$$
b) 
$$(D^{2}+6D+8)Y = 6x^{2}\alpha$$
c) 
$$(D^{2}+6D+8)Y = 6x^{2}\alpha$$
d) 
$$(D^{2}+6D+8)Y = 6x^{2}\alpha$$
e) 
$$(D^{2}+6D+8)Y = 6x^{2}$$



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$$(3) (0^{2}+9) 4 = e^{-2x}$$

$$m = -3i, -3i$$

$$Cf = e^{-2x} (A \cos 3x + B \sin 2x)$$

$$2F = \frac{1}{D^{2}+9} = e^{-2x}$$

$$= \frac{1}{18} e^{-2x}$$

$$= \frac{1}{2D+1} \cdot e^{-x} + 3 \cdot \frac{1}{D^{2}+2D+1} e^{-x}$$

$$= \frac{1}{2D+1} \cdot e^{-x} + 3$$

$$= \frac{1}{2D+1} \cdot e^{-x} + 3$$

(a) 
$$PP = \left(\frac{1}{D^2 + 3D + 2}\right)^{4} = 1 \text{ Sim}$$

Type II Sinan on lowar PT =  $\frac{1}{9(D)}$  Sin and PT =  $\frac{1}{9(D)}$  Sin and PT =  $\frac{1}{1 + 3D + 2}$  Sina =  $\frac{1}{3D + 1}$  Sina =  $\frac{3D - 1}{3D + 1}$  Sina =  $\frac{3D - 1}{3D - 1}$  Sina

$$= \frac{1}{10} \left[ \frac{3}{3} \right] \left( \frac{\sin x}{3} \right) - \frac{\sin x}{3}$$

$$= \frac{1}{10} \left[ \frac{3}{3} \right] \left( \frac{\cos x}{3} - \frac{\sin x}{3} \right)$$

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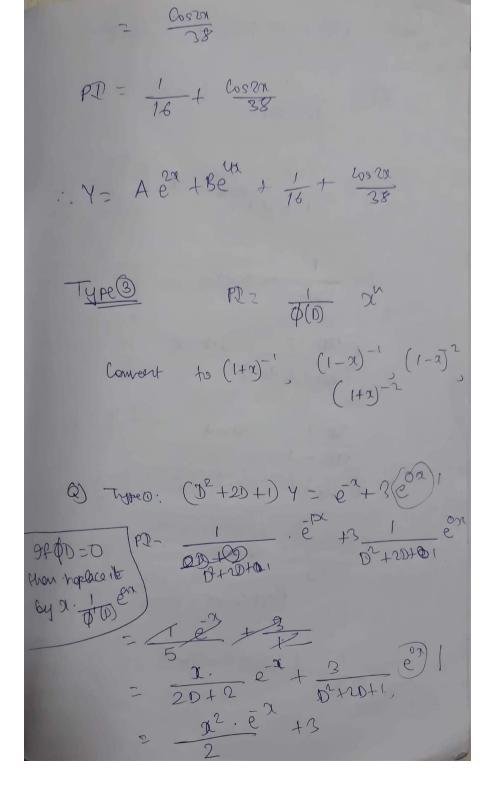
$$= \frac{1}{10} \left[ \frac{\cos x}{3} - \frac{\cos x}{3} \right]$$

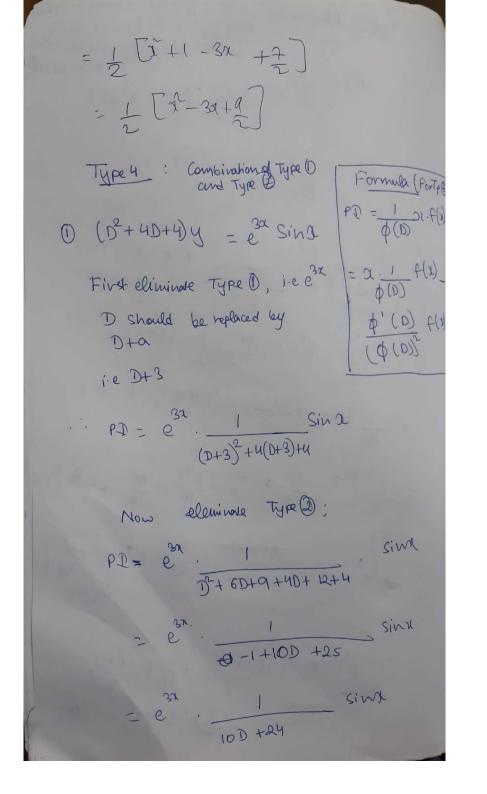
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$$= e^{3x} \cdot \frac{(10D - 24)}{(10D + 24)} \cdot \frac{10D}{(10D - 24)}$$

$$= e^{3x} \cdot \frac{10D - 24}{(100D^2 - 576)} \cdot \frac{10D - 24}{-676} \cdot \frac{1$$

$$\frac{1}{3} \left( \frac{1}{5^{2}} + 9 \right) y = \left( \frac{1}{2} + 1 \right) e^{3x}$$

$$= \frac{1}{(5^{2} + 9)} e^{3x} \cdot \left( 1 + \frac{1}{x^{2}} \right)$$

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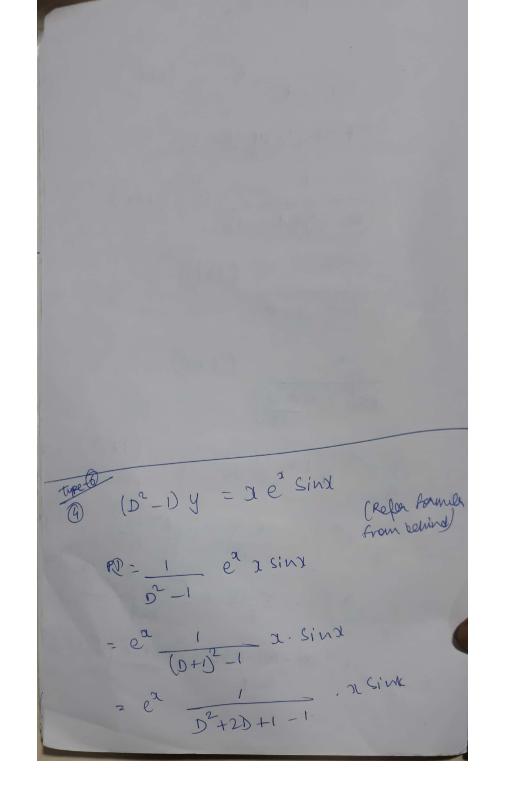
$$= \frac{1}{(5^{2} + 9)} e^{3x} \cdot \left( 1 + \frac{1}{x^{2}} \right)$$

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$$= e^{x} \cdot \frac{1}{D^{2} + 2D} \cdot x \cdot Sinx$$

$$= e^{x} \left( x \cdot \frac{1}{D^{2} + 2D} \cdot Sinx - \frac{2D + 2}{D^{4} + 2D^{2}} \cdot Sinx \right)$$

$$= e^{x} \left( x \cdot \frac{1}{2D - 1} \cdot Sinx - \frac{2D}{D^{4} + 10^{2} + 10^{2}} \cdot Sinx \right)$$

$$= e^{x} \left( x \cdot \frac{2D + 1}{2D - 1} \cdot Sinx - \frac{2D + 2}{2D - 1} \cdot Sinx \right)$$

$$= e^{x} \left( x \cdot \frac{2D + 1}{2D - 1} \cdot Sinx - \frac{2D + 2}{2D - 1} \cdot Sinx \right)$$

$$= e^{x} \left( x \cdot \frac{2D + 1}{2D - 1} \cdot Sinx + \frac{2D + 2}{2D + 1} \cdot Sinx \right)$$

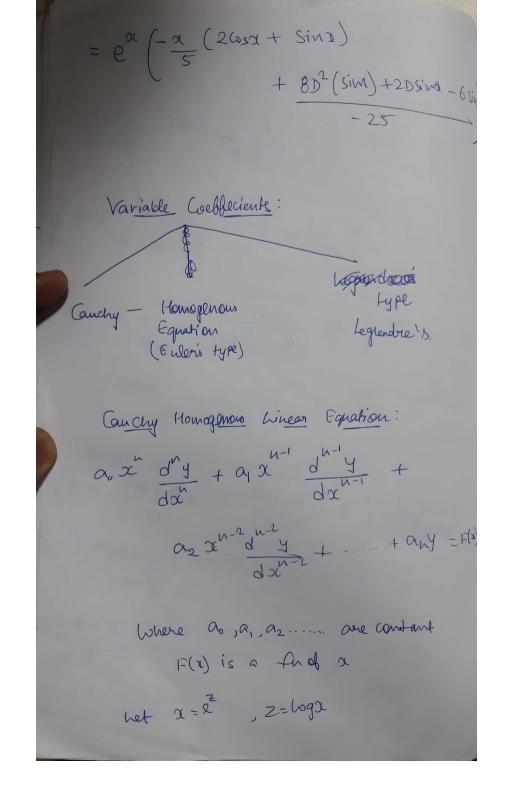
$$= e^{x} \left( x \cdot \frac{2D + 1}{2D - 1} \cdot Sinx + \frac{2D + 2}{2D + 1} \cdot Sinx \right)$$

$$= e^{x} \left( x \cdot \frac{2D + 1}{2D - 1} \cdot Sinx + \frac{2D + 2}{2D + 1} \cdot Sinx \right)$$

$$= e^{x} \left( -\frac{2}{5} \cdot (2D \cdot Sinx + Sinx) + \frac{8D^{2} + 6D \cdot 6D^{3} - 6Sin}{16D^{3} - 9} \cdot Sinx \right)$$

$$= e^{x} \left( -\frac{2}{5} \cdot (2C \cdot Sx + Sinx) + \frac{8D^{2} + 6D \cdot 6D^{3} - 6Sin}{16D^{3} - 9} \cdot Sinx \right)$$

$$= e^{x} \left( -\frac{2}{5} \cdot (2C \cdot Sx + Sinx) + \frac{8D^{2} + 2D - 6}{2D - 25} \cdot Sinx \right)$$



$$\frac{d}{dx} = D \qquad dz = D'$$

$$\frac{d}{dx} = D$$

$$2D = D'$$

$$2D = D'(D'-1)$$

$$2D = D'(D'$$

CF: 
$$A(os2+8sin2)$$

$$PD = 4 \cdot \frac{1}{D^{12}+1} sin2$$

$$= 4 \cdot \frac{2}{20} - sin2$$

$$=$$

Legendrés Type:  $(ax+b)^n d^n y + P, (ax+b)^{n-1} d^{n-1} y$ +..... Puy= f(x) het (artb) = e 2 = lug (ax+b) (ax+6)) = a) (ax+b) D= a D'(D'-1) Q) Solve (22+5) dy - 6 (2x+5) dy + 8y 20 het 2x+5 = 2 Z= log(2x+5) (2x+5)D-2aD' (22+5)D=40'(D-1)

$$[4b'(b'-1) - 6(2b') + 8] Y = 0$$

$$(4b' - 404b' - 12b' + 8) Y = 0$$

$$(4b'' - 16b' + 8) Y = 0$$

$$M = 16 \pm \sqrt{165' - 4(4)(8)}$$

$$2(4)$$

$$M = 2 \pm \sqrt{2}$$

$$CF = Ae^{2+2\sqrt{2}} + Be^{2\sqrt{2}}$$

$$Y = A(2x+5)^{2+\sqrt{2}} + B(2x+5)^{2}$$

$$Y = A(2x+5)^{2+\sqrt{2}} + B(2x+5)^{2}$$

$$(1+2)^{2} \sqrt[3]{3} + (1+2) \frac{dy}{dx} + Y$$

$$= 4 (6e(log(HX))$$

$$4e^{2}(1+3)^{2} = e^{2}(1+3) \frac{dy}{dx} = b'(b'-1)$$

$$4e^{2}(1+3)^{2} = e^{2}(1+3) \frac{dy}{dx} = b'(b'-1)$$

$$(1+3)^{2} \sqrt[3]{3} = b'(b'-1)$$

$$(1+3)^{2} \sqrt[3]{3} = b'(b'-1)$$

