	Date
	Power Series Solution about an ordinary pointing
	$\int_{-\infty}^{\infty} \int_{-\infty}^{\infty} dx dx dx dx dx dx dx dx $
	Therefore Let x=xo is an ordinary point of (1).
	Then the power series solution of (1) about x=x0 is of
	the form $y(x) = C_0 + G(x-x_0) + G(x-x_0)^2 + G(x-x_0)^$
Ex	Find the power Series solution about x=0 of the differential Equation y'-2y=0
Soin	The given diff. ϵ_{qu} is $y'-2y=0$ —(1)
-	Let the power series solution of (1) about x=0 is of
	the form y(x) = Co+Gx+Gx2+Gx3+
	$\Rightarrow y'(x) = G + 2C_{2}x + 3G_{2}x^{2} +$
	Substitute y(x) and y(x) in (1), we get
	$(9+2(x+3(x^2+))-2(c+(x+(x^2+(x^3+))=0)$
	=) $(G-2C_0) + 2(g-C_1) \times + (3C_3-2C_2) \times^2 ++ (m+1) c_m - 2C_m / 2$
continue de sala	4=0
	Compare ceeff of various powers of x, we get.
	$G - 2C_0 = 0 \Rightarrow G = 2C_0$
	$2g - 24 = 0 \Rightarrow G = 4 = 2G$
	3(g-2(g=0=) 3(g=2(g
	$3 = 2C_2 = 4C_6 = 3$
	$y(x) = G + Gx + Gx^2 + Gx^3 + \dots$
1	$= C_0 + 2C_0x + 2C_0x^2 + \frac{4}{3}C_0x^3 + \dots$
	$= G \left[1 + 2x + 2x^2 + 4x^3 + \dots \right]$
	$= G\left[1 + 3x + \frac{9x}{2} + \frac{2x^{3}}{3} + - \right] = Ge^{2x}$

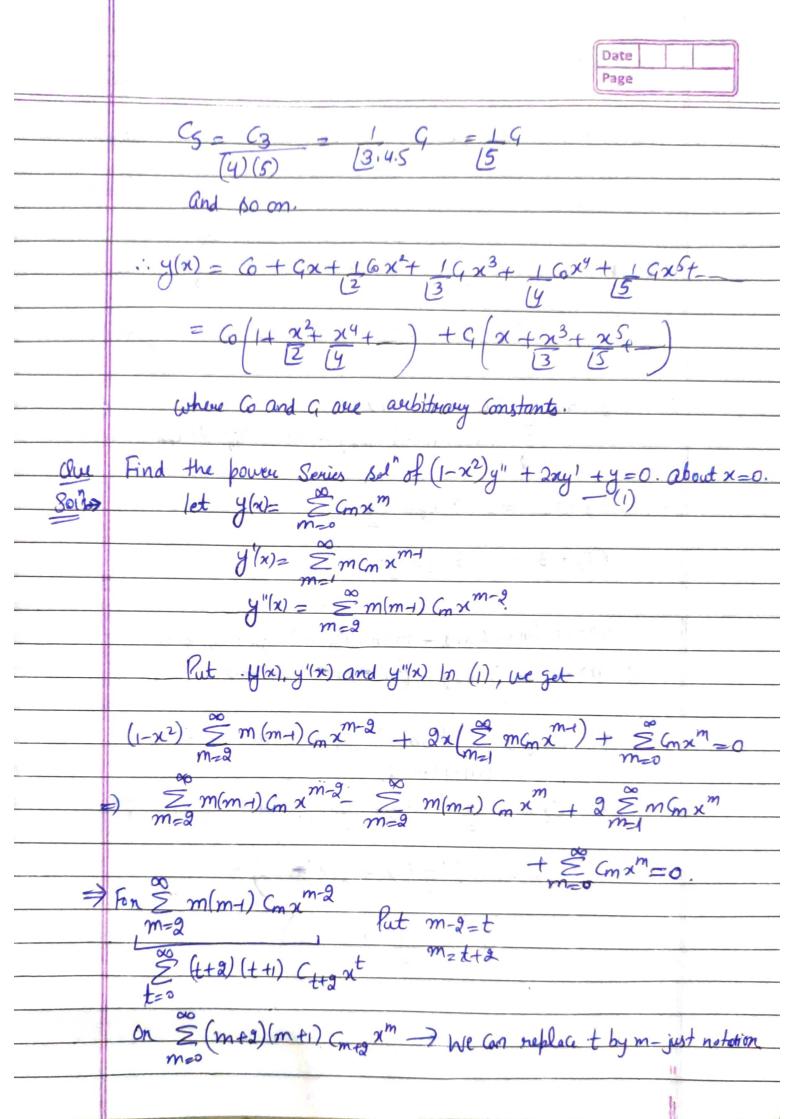
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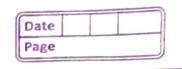
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Que	Find the power Series Solution of y"-y=0
Solls	let the power Series sol about x-0:
	let the power Series sol about x=0 is $\frac{360}{m=0} = \frac{2}{5} G_{m} \times m$
	y'h) = = m cm xm-1
	$y''(x) = \sum_{m=2}^{\infty} m(m+1) c_m x^{m-2}$
	So y"-y-0
	$So y''-y-0$ $\Rightarrow \sum_{m=2}^{\infty} m(m-1)(m) x^{m-2} - \sum_{m=0}^{\infty} (m) x^{m} = 0$ $\Rightarrow \sum_{m=0}^{\infty} (1+0)(1+0) = 0$
	→ = (1, 2) (1, 2) + ∞0
	$\Rightarrow \sum_{t=0}^{\infty} (t+9)(t+1) C_{t+2} x^{t} - \sum_{m=0}^{\infty} C_{m} x^{m} z_{0}$
	Put m-2=t
0	and the state of t
	On \(\sum_{m=0}^{\infty} \left(m+1 \right) \left(m+2 \right) \sum_{m=0}^{m} \sum_{m=0}^{m} \left(m \times \frac{1}{2} \right) \left(m+2 \rig
	Comparing Coeff of lite powers of x, we get (m+2) (m+1) Cn+2 - Cn=0
	$(m+2)(m+1)(m+2=G_m)$
	$=) \frac{Gm+2}{(m+1)(m+2)}$
	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$

$$\frac{1}{2}$$
 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$

$$G = G = 16 = 19$$

$$\frac{C_3 = C_1}{(2)(3)} = \frac{1}{6} = \frac{1}{3} = \frac$$





$$\frac{2}{m} \left(\frac{m+2}{m+2} \right) \left(\frac{m+1}{m+2} \right) \left(\frac{m}{m-2} \right) \left(\frac{m}{m} \right) \left(\frac{m}{m$$

$$2G+6Gx+\frac{\infty}{m=2}(m+2)(m+1)(m+2)x^{m}-\frac{\infty}{m=2}m(m-1)(m+2)x^{m}$$

$$\frac{1}{2}$$
 $\frac{2G+6G\times+2G\times+G+G\times+}{2}$ $\frac{1}{2}$ $\frac{1}{2}$

$$(m+2)(m+1)(m+2) - m(m-1)(m+2)m(m+1)(m=0)$$

 $(m+2)(m+1)(m+2) - (m^2+3m+1)(m=0)$

$$\frac{1}{2}$$
 $\frac{1}{2}$ $\frac{1}$

$$=) \quad Q = \frac{-6}{2}, \quad Q = \frac{-1}{2}Q, \quad Q = \frac{-3}{2}Q = \frac{1}{8}Q$$

$$y(x) = G\left(1 - \frac{1}{2}x^2 + \frac{1}{8}x^4 + \dots\right) +$$

$$G\left(X-\frac{x^3}{2}+\ldots\right)$$