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$$y''' - 4y'' + y' + 6y = 0$$

linear hom n

-1	1 - 4	1 + 6	
e	1 - 5	6	0
3	1 - 3		0
	1	0	

$$y = c_1 e^{-1x} + c_2 e^{2x} + c_3 e^{3x}$$

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$$y'''' - y'''' - 7y'' + y' + 6y = 0$$

$$\alpha^4 - \alpha^3 - 7\alpha^2 + \alpha + 6 = 0$$

	1	-1	-7	1	6	
1		1	0	-7	-6	
	1	0	-7	-6		0
-1		-1	1	6		
	1	-1	-6			0

$$\alpha^2 - \alpha - 6 = 0$$

$$\alpha = \frac{1 \pm \sqrt{1+24}}{2} = \begin{cases} \frac{1+5}{2} = 3 \\ \frac{1-5}{2} = -2 \end{cases}$$

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$$C_1 e^x + C_2 e^{-x} + C_3 e^{3x} + C_4 e^{-2x}$$

(60)

$$y^{(4)} - 4y^{(3)} + 6y'' - 4y' + y = 0$$

$$\alpha^4 - 4\alpha^3 + 6\alpha^2 - 4\alpha + 1 = 0$$

	1	-4	6	-4	1
1		1	-3	3	-1
	1	-3	3	-1	0
1		1	-2	1	
	1	-2	1	0	

$$\alpha^2 - 2\alpha + 1 = 0$$

$$\alpha = 1 \pm \sqrt{1-1} = 1 \pm 0$$

$$C_1 e^x + C_2 x e^x + C_3 x^2 e^x + C_4 x^3 e^x$$