## REDUÇÃO DE ORDEM

I

ESSE METODO PERMITE:

USAR UMA SOLUÇÃO 7/1 DE UMA EQ. LINGAR HOMOGE PARA NEA DE 2º ORDEM:

 $a_{2(x)}y'' + a_{1(x)}y' + a_{0(x)}y = 0$ 

ENCONTRAR UMA 2º SOLUGÃO 7/2 (LI DE 7/2)

EXI - SE Y = Z E SONGAO X [7"- Y=0];

o tentativa:  $\gamma = \mu(x), \gamma_{1}(x) = \frac{2}{2}$   $(1) \gamma_{1}(x) = \frac{2}{2}$ 

· TO 7"- 7 = 0 PRECISA 7' E 7" 11

DE (1): [ /= 1(x).e ];

3

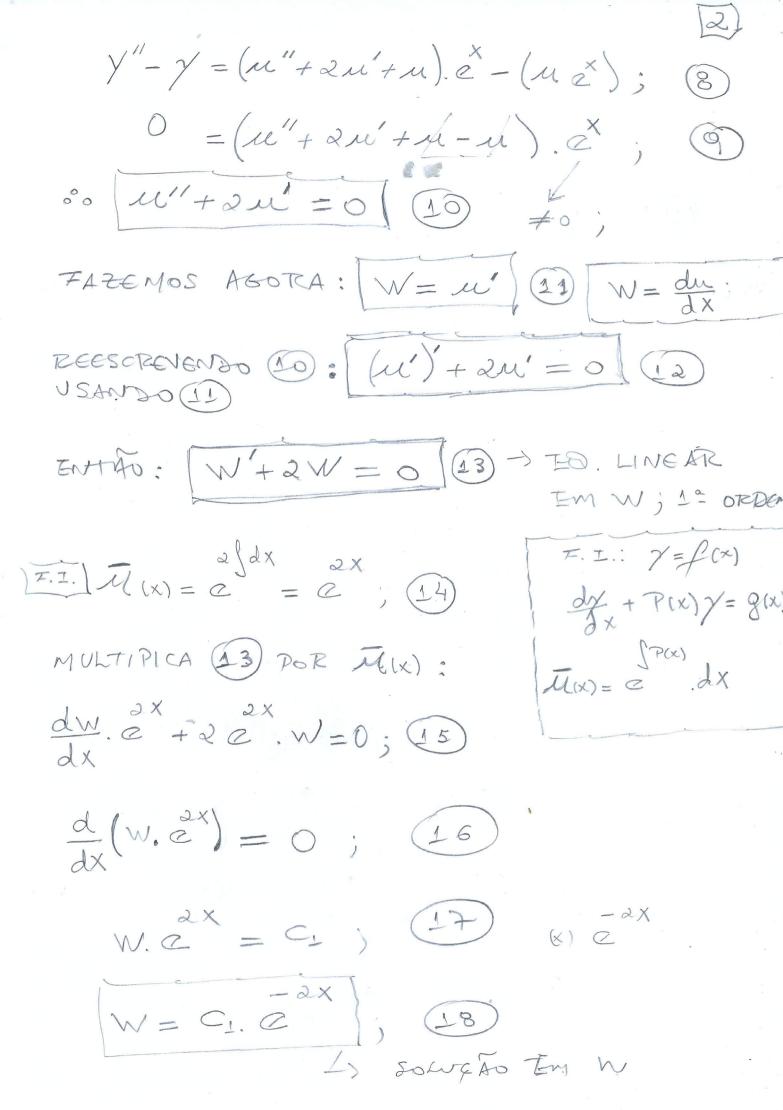
ENTAO: y'= m'e Ane; @

E: y"=""x+" (E) + Me, E+Me, B)

on: /"=(u"+u'+u'+u), e"), 6

\\ \gamma'' = (\u'' + 2\u' + \u). \e^{\text{\tint{\text{\tint{\text{\tint{\text{\tint{\text{\text{\text{\text{\text{\ti}\text{\texi\texi{\text{\text{\texi}\titt{\titt}\\\\tittt{\text{\text{\text{\text{\text{\texi\text{\te\

SUBSTITUI: (F) E (3) NA EO. (2):



LEMBRANDO: 
$$W = \frac{du}{dx}$$
, ENTHO, EM (B):

$$\frac{du}{dx} = C_1 \cdot e^{2x}$$
; (9) OBTEM  $\mathcal{U}(x)$  (S.V.)

$$du = C_1 \cdot e^{2x} dx$$
; (20)

$$\mathcal{U}(x) = -C_1 \cdot e^{2x} dx$$
; (21)

$$\mathcal{U}(x) = -C_1 \cdot e^{2x} dx$$
; (22)

$$\mathcal{U}(x) = -C_1 \cdot e^{2x} dx$$
; (23)

$$\mathcal{V}(x) = -C_1 \cdot e^{2x} dx$$
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; (23)

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; (24)

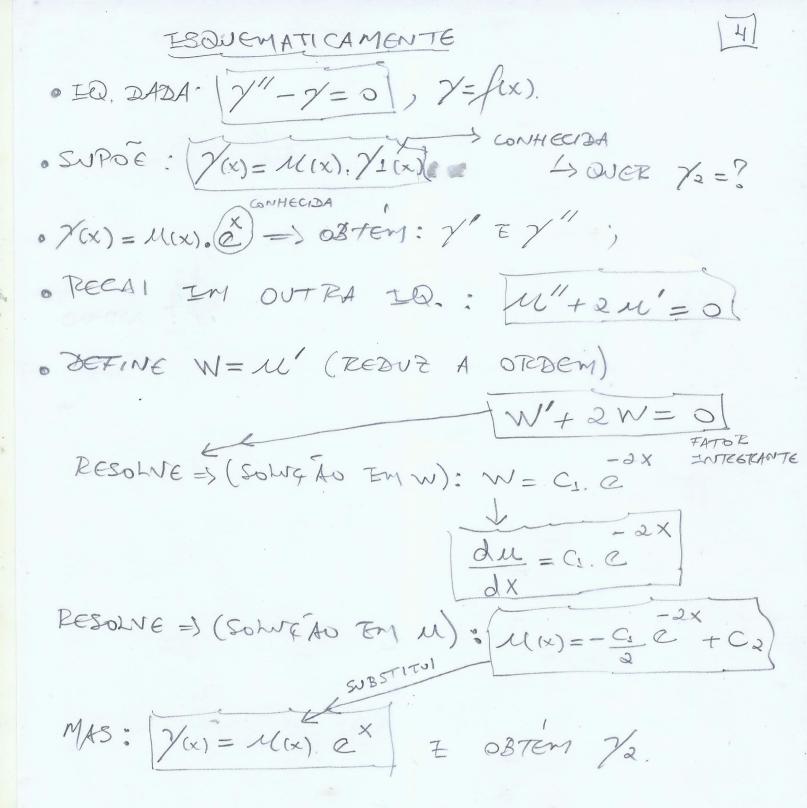
$$\mathcal{V}(x) = -C_1 \cdot e^{2x} dx$$
; (25)

$$\mathcal{V}(x) = -C_1 \cdot e^{2x} dx$$
; (26)

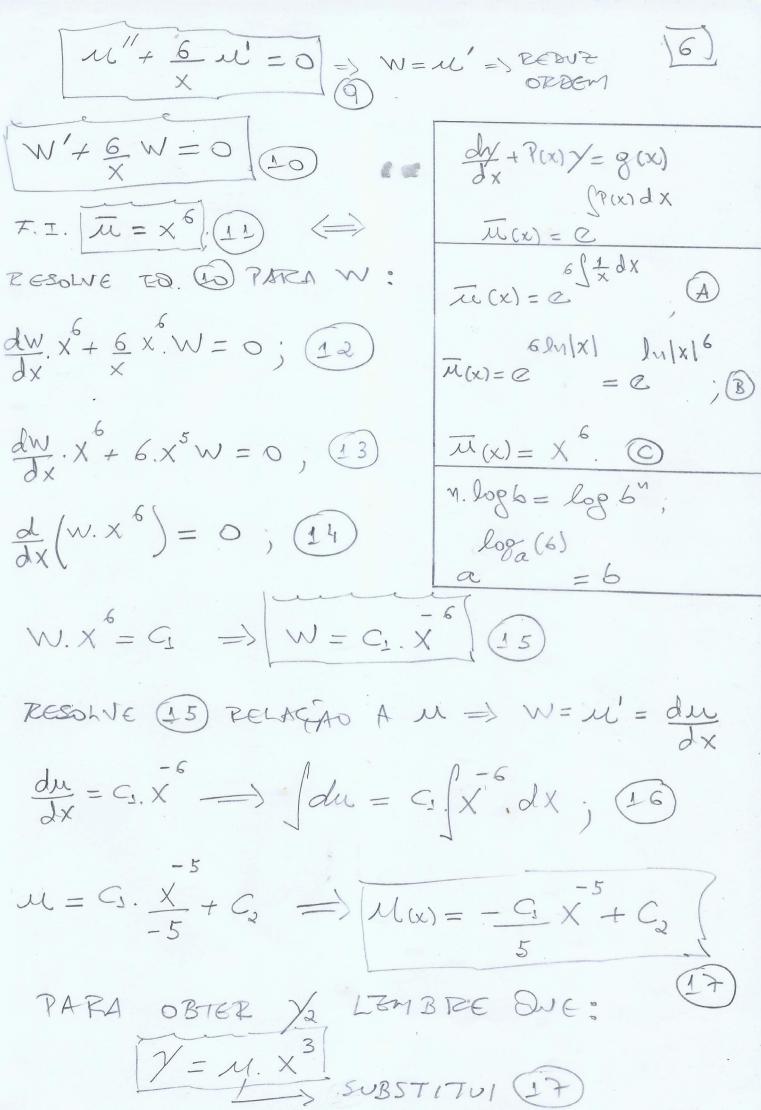
$$\mathcal{V}(x) = -C_1 \cdot e^{2x} dx$$
; (27)

$$\mathcal{V}(x) = -C_1 \cdot e^{2x} dx$$
; (28)

$$\mathcal{V}(x) = -C_1 \cdot e^{2x} dx$$
; (29)



EX2 - SENDO 
$$y_1 = x^3$$
, ENCONTRAR UNIA  
SECUNDA SOLUÇÃO PARA  $x^2y'' - 6y = 0$   
SOLUÇÃO  
• YW = M(x).  $y_1 \Rightarrow \begin{cases} u(x) = ? \\ y_2 = x^3 \end{cases}$ ; (a.b) = a'.6+a.b'  
 $y' = u' \times \mathcal{A} = u \times \mathcal{A} = \mathcal{A}$ 



$$\gamma = \left(-\frac{c_1}{5} \times^5 + C_2\right) \times 3$$

$$\gamma = -\frac{c_1}{5} \times^2 + C_2 \times 3$$

$$\gamma = A \cdot / 2 + 3 \cdot / 1$$

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$$T = X^{3}$$
:  $\gamma_{1}(x) = X^{3}$ ;  
 $x^{2} \gamma'' - 5 x \gamma' + 9 \gamma = 0$ ; ACHAR  $\gamma_{2}$