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• Métodos dos Mínimos Quadrados

$$\Rightarrow f(x) = e^{-x} ; \text{ } \pm: [1, 3] \quad \text{e} \quad g(x) = a_1 + a_2 x$$

$$* g_1(x) = 1$$

$$* g_2(x) = x$$

$$\Rightarrow \begin{bmatrix} \int_1^3 1^2 dx & \int_1^3 x dx \\ \int_1^3 x dx & \int_1^3 x^2 dx \end{bmatrix} \begin{bmatrix} a_1 \\ a_2 \end{bmatrix} = \begin{bmatrix} \int_1^3 e^{-x} dx \\ \int_1^3 e^{-x} \cdot x dx \end{bmatrix}$$

$$\Rightarrow \begin{bmatrix} 1 & 4 \\ 4 & 26/3 \end{bmatrix} \begin{bmatrix} a_1 \\ a_2 \end{bmatrix} = \begin{bmatrix} (1/e) - (1/e^3) \\ (2/e) - (4/e^3) \end{bmatrix}$$

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→ Aplicando o método de Gauss:

$$\Rightarrow a_1 = \frac{-x^2 - 11}{11x^3} \approx -0,0832$$

$$\star a_2 = \frac{3}{11x} = 0,1003$$

$$\therefore g(x) = -0,0832 + 0,1003x$$