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EDO - Capítulo 7

Ex 7.1)

$$M(x,y)u(x,y) + u(x,y)N(x,y)dy = 0$$

$$\frac{\partial (u(x,y) \cdot M(x,y))}{\partial y} = \frac{\partial (u(x,y) \cdot N(x,y))}{\partial x}$$

$$u_y M + u M_y = u_x N + u N_x$$

$$u_y M + u M_y - u_x N - u N_x = 0$$

$$u_y M - u_x N + u(M_y - N_x) = 0$$

$$7.2) M(x,y)u(x,y) + u(x,y)N(x,y)dy = 0$$

$$\frac{\partial (M(x,y) \cdot u(x,y))}{\partial y} = \frac{\partial (u(x,y) \cdot N(x,y))}{\partial x}$$

$$u \cdot M_y = u_x \cdot N + u N_x \Rightarrow \frac{du}{dx} = \frac{(M_y - N_x)u}{N}$$

$$7.3) u(y)M(x,y) + u(y)N(x,y)dy = 0$$

$$\frac{\partial (N(y) \cdot M(x,y))}{\partial y} = \frac{\partial (u(y) \cdot N(x,y))}{\partial x}$$

$$u_y \cdot M + u M_y = u N_x \Rightarrow \frac{du}{dy} \cdot M = N_x - M_y u$$

$$\frac{du}{dy} = \frac{(N_x - M_y)u}{M}$$

