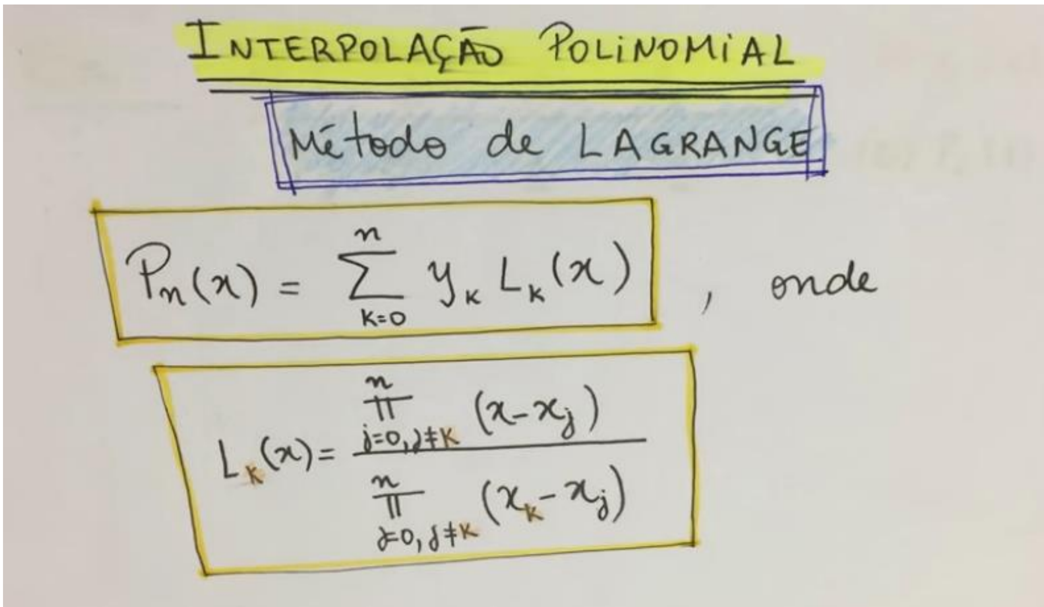
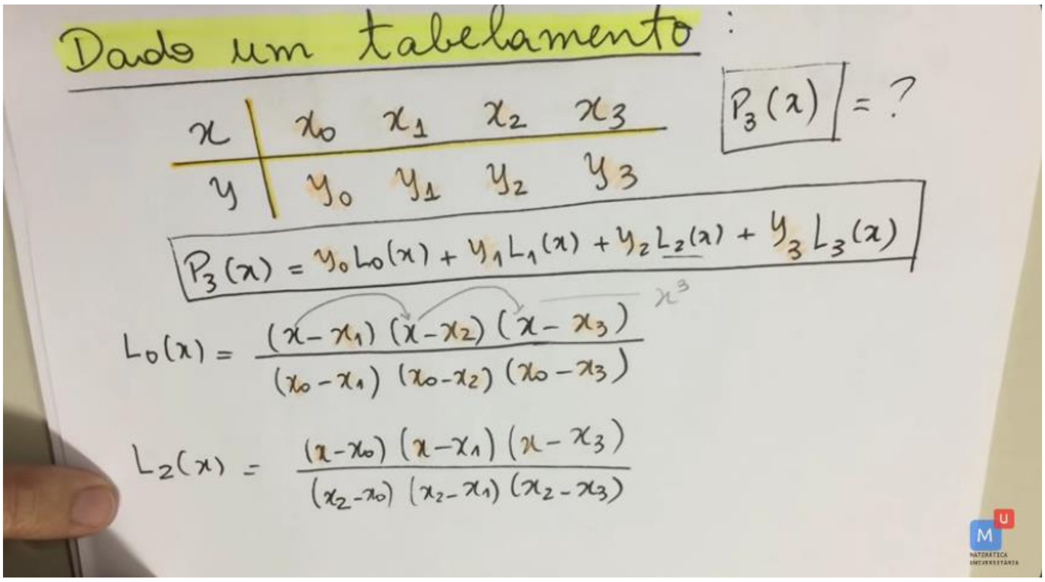
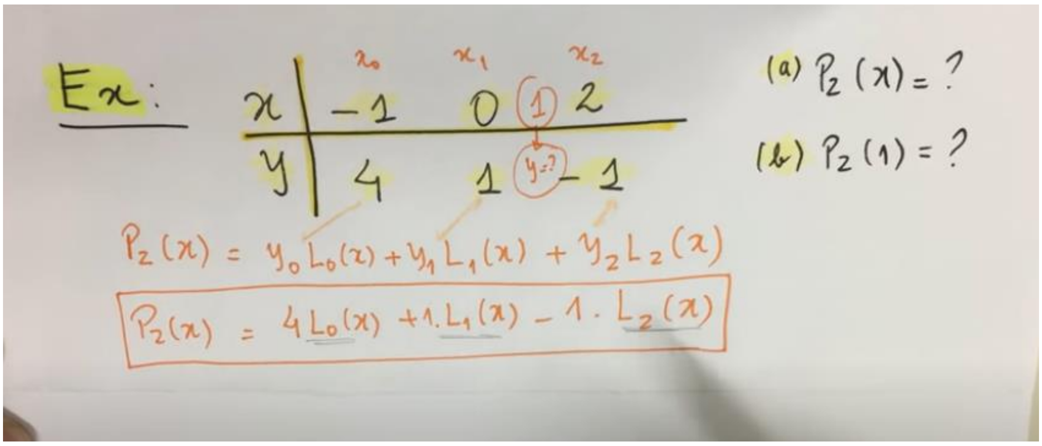
Método de Lagrange





Ex:



$$L_0(x) = \frac{(x-x_1)(x-x_2)}{(x_0-x_1)(x_0-x_2)} = \frac{(x-0)(x-2)}{(-1-0)(-1-2)} = \boxed{\frac{x^2-2x}{3}}$$

$$L_1(x) = \frac{(x-x_0)(x-x_2)}{(x_1-x_0)(x_1-x_2)} = \frac{(x+1)(x-2)}{(0+1)(0-2)} = \boxed{\frac{x^2-x-2}{-2}}$$

$$L_2(x) = \frac{(x-x_0)(x-x_1)}{(x_2-x_0)(x_2-x_1)} = \frac{(x+1)(x-0)}{(2+1)(2-0)} = \boxed{\frac{x^2+x}{6}}$$

$$\boxed{P_2(x) = 4.\left[\frac{x^2-2x}{3}\right] + \left[\frac{x^2-x-2}{-2}\right] - \left[\frac{x^2+x}{6}\right]}$$

$$P_2(1) = 4.\left[\frac{1^2-2.1}{3}\right] + \left[\frac{1^2-1-2}{-2}\right] - \left[\frac{1^2+1}{6}\right] \cong -0{,}66667$$

$$P_2(x) = 4\left[\frac{x^2-2x}{3}\right] - \left[\frac{x^2-x-2}{2}\right] - \left[\frac{x^2+x}{6}\right]$$

$$= \frac{4x^2-8x}{3} - \frac{x^2+x+2}{2} - \frac{x^2-x}{6}$$

$$= \frac{8x^2-16x-3x^2+3x+6-x^2-x}{6}$$

$$= \frac{4x^2-14x+6}{6} \boxed{= \frac{2}{3}x^2 - \frac{7}{3}x + 1}$$