Polinomios de Interpolación de Lagrange

Grado 1

$$f_1(x) = \frac{x - x_1}{x_0 - x_1} f_{(x_0)} + \frac{x - x_0}{x_1 - x_0} f(x_1)$$

$$f_1(x) = \frac{x - 3}{2 - 3}(1) + \frac{x - 2}{3 - 2}(2.1)$$

$$f_1(x) = 1{,}1x - 1.2$$

$$f_1(2{,}5) = 1.55$$

Grado 2

$$f_2(x) = \frac{(x - x_1)(x - x_2)}{(x_0 - x_1)(x_0 - x_2)} f_{(x_0)} + \frac{(x - x_0)(x - x_2)}{(x_1 - x_0)(x_1 - x_2)} f_{(x_1)} + \frac{(x - x_0)(x - x_2)}{(x_2 - x_0)(x_2 - x_1)} f_{(x_2)}$$

$$f_2(x) = \frac{(x - 3)(x - 4)}{(2 - 3)(2 - 4)}(1) + \frac{(x - 2)(x - 4)}{(3 - 2)(3 - 4)}(2.1) + \frac{(x - 2)(x - 3)}{(4 - 2)(4 - 3)}(2.4)$$

$$f_2(x) = \frac{x^2 - 7x + 12}{2}(1) + \frac{x^2 - 6x + 8}{-1}(2.1) + \frac{x^2 - 5x + 6}{2}(2.4)$$

$$f_2(x) = -0.4x^2 + 3.1x - 3.6$$

$$f_2(2{,}5) = 1.65$$

Grado 3

$$f_3(x) = \frac{(x-2)(x-3)(x-4)}{(1-2)(1-3)(1-4)}(0.1) + \frac{(x-1)(x-3)(x-4)}{(2-1)(2-3)(2-4)} + \frac{(x-1)(x-2)(x-4)}{(3-1)(3-2)(3-4)}(2.1) + \frac{(x-1)(x-2)(x-3)}{(4-1)(4-2)(4-3)}(\mathbf{2.4})$$

$$f_3(x) = -\frac{x^3 - 9x^2 + 26x - 24}{6}(0.1) + \frac{x^3 - 8x^2 + 19x - 12}{2}(1) - \frac{x^3 - 7x^2 + 14x - 8}{2}(2.1) + \frac{x^3 - 6x^2 + 12x - 6}{6}(2.4)$$

$$f_3(x) = -0.01666x^3 + 1.1x^2 - 1.2333x + 0.4$$

$$f_3(2.5) = -0.01666(2.5)^3 + 1.1(2.5)^2 - 1.2333(2.5) + 0.4$$