

\* Lineal

$$F_1(2) = \frac{1.386294 - 0}{4 - 1} (2 - 1) + 0 = 0.462098$$

\* Cuadrática

$$F_2(2) = 0 + \left( \frac{1.386294 - 0}{4 - 1} \right) (2 - 1) + \left( \frac{\frac{1.609438 - 1.386294}{5 - 4} - 1.386294 - 0}{4 - 1} \right) (2 - 1)(2 - 4)$$
$$= 0.581575$$

\* Cubica

$$F[x_i, x_j] = \frac{F(x_i) - F(x_j)}{x_i - x_j}$$

$$F[x_1, x_0] = \frac{1.386294 - 0}{4 - 1} = 0.462098$$

$$F[x_2, x_1] = \frac{1.609438 - 1.386294}{5 - 4} = 0.223144$$

$$F[x_3, x_2] = \frac{1.791752 - 1.609438}{6 - 5} = 0.182314$$

$$F[x_i, x_j, x_k] = \frac{F(x_i) - F(x_j)}{x_i - x_k} - \frac{F(x_j) - F(x_k)}{x_j - x_k}$$

$$F[x_2, x_1, x_0] = \frac{0.223144 - 0.462098}{5 - 1} = -0.0597385$$

$$F[x_3, x_2, x_1] = \frac{0.182314 - 0.223144}{6 - 1} = -0.020415$$

$$F[x_3, x_2, x_1, x_0] = \frac{-0.020415 - (-0.0597385)}{56 - 4} = 7.8647 \times 10^{-5}$$

$$f_n(x) = b_0 + b_1(x - x_0) + \dots + b_n(x - x_0)(x - x_1)\dots(x - x_{n-1})$$

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$$f_3(x) = 0 + 0.462098(x-1) - 0.0597385(x-1)(x-4) + \\ 7.8617 \times 10^{-3} (x-1)(x-4)(x-5)$$

$$f_3(x) = 0.628763$$