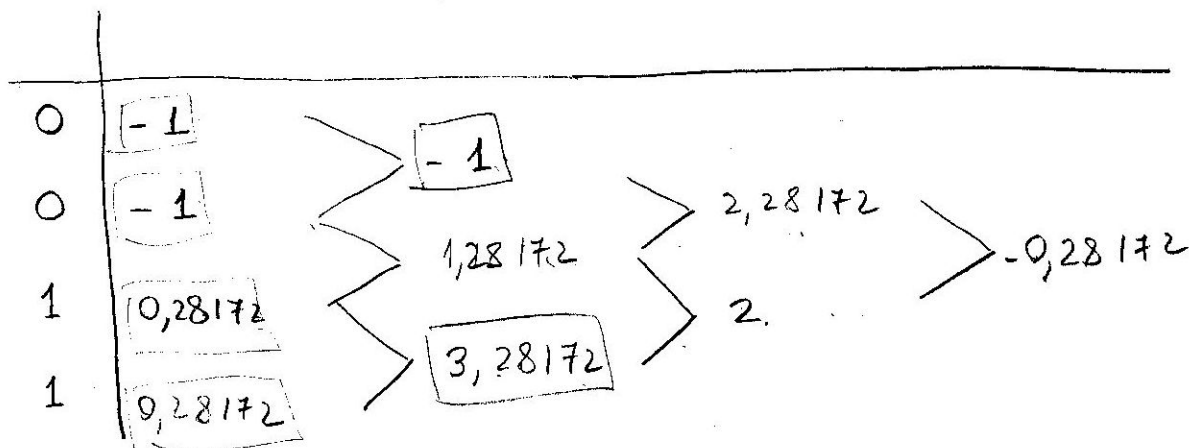


Ej3-

x	f(x)	f'(x)
0	-1	-1
1	0,28172	3,28172



Aplico Dif divididas:

$$-1 - 1(x-0) + 2,28172(x-0)(x-0) - 0,28172(x-0)(x-0)(x-1)$$

$$P(x) = -1 - x + 2,28172x^2 - 0,28172x^2(x-1) \quad \text{Polinomio}$$

Verifico las 4 condiciones:

$$\Rightarrow P(0) = -1 \quad \checkmark$$

$$P(1) = -2 + 2,28172 = 0,28172 \quad \checkmark$$

$$P'(x) = -1 + 4,56344x - 0,28172[2x(x-1) + x^2]$$

$$\Rightarrow P'(0) = -1 \quad \checkmark$$

$$P'(1) = -1 + 4,56344 - 0,28172 = 3,28172 \quad \checkmark$$

Cota Teorica del Error:

$$|Er(P_4(x))| \leq \frac{|f^{(4)}(\xi)|}{4!} |(x-0)^2|(x-1)^2|$$

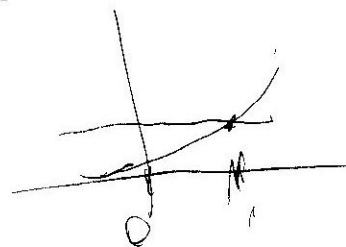
Formula generica error

$$\frac{|f^{(m+1)}(\xi)|}{(m+1)!} (x-x_0)(x-x_1)(x-x_2)(x-x_3)$$

$$f(x) = 3x^2 - e^x \quad f'''(x) = -e^x$$

$$f'(x) = 6x - e^x$$

$$|f^{(4)}(x)| = e^x \leq e \quad \Rightarrow |Er| \leq \frac{e}{4!} (0,5)^2 (0,5)^2 = 0,007018$$



Error real $\Rightarrow$

$$P(0,5) = -1 - 0,5 + 2,28172 \cdot 0,5^2 + 0,28172 (0,5)(0,5)(0,5)$$

$$P(0,5) = 0,894355$$

$$f(0,5) = 3 \cdot (0,5)^2 - e^{0,5} = -0,898721$$

$$|P(0,5) - f(0,5)| = 0,0043 < 0,007078 \quad \checkmark \text{ OK}$$

Se verifica q' el error real es mas pequeño q' la cota teórica.