

Gabriela Lossen  
Cagunara

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este es el intervalo de  
150

**Ejercicio:**  $f(x) = -0.1x^4 - 0.18x^3 - 0.5x^2 + 0.28x + 1.2$

• Polinomio de grado 4.  $h$  - incremento  $\sum = 0.5$  noteloda pero asanas uno que

Predecir el valor en  $x=1$  con  $h=1$  usando la serie de Taylor de orden 4, y calculando el residuo en cada caso.

• Como  $h=1$  entonces  $h = x_{i+1} - x_i$   $x_{i+1} = 1$   $x_i = 0$

$n$   $f(x=1)^{aprox}$   $R_n(\text{residuo})$  con  $x=0$

0  $1.2$   $f'(x) = -0.4x^3 - 0.45x^2 - x - 0.25 = -0.25$

1  $1.2 - 0.25 = 0.95$   $f'(x) = -0.4(1.5)^3 - 0.45(1.5)^2 - (1.5) - 0.25 = -0.91$

2  $0.95 - \frac{0.91}{2!} = 0.45$   $f''(x) = -1.2x^2 - 0.9x - 1 = -1.75$

3  $0.45 - \frac{1.75}{3!} = 0.15$   $f''(x) = -1.2(1.5)^2 - 0.9(1.5) = -1.75$   
 $f''(0.5)/2! = -0.87$

4  $0.15 - \frac{0.87}{4!} = 0.045$   $f'''(x) = 2.4x - 0.9$   
 $f'''(x) = 2.4(1.5) - 0.9 = 2.1$   
 $f'''(0.5)/3! = -0.35$

Gabriela Casson Cassnara

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scribble

n	$f(x=1)$ aprox	$R_n$ (resíduo)
3	$x_i = 0$	$f'''(x) = -2.4x - 0.4$
	$f'''(x_i)(x_{i+1}-x_i)^3$	$f'''(x) = -2.4$
	$3!$	$f'''(x)(h)^n = \frac{-2.4(1)^3}{4!} = -0.1$
	$= -0.15$	$(n+1)!$
	$-0.15 + 0.45$	
	$= 0.3$	

4	$f^{(4)}(x) = -2.4$	$f^{(4)}(x) = 0$
	$f^{(4)}(x_i)(x_{i+1}-x_i)^4$	$f^{(4)}(x)(h)^n = \frac{0(1)^4}{5!} = 0$
	$4!$	$5!$
	$= -0.1$	
	$-0.1 + 0.3$	
	$= 0.2$	

$\Rightarrow f(1) = 0.2$

$f(x) = -0.1x^4 - 0.15x^3 - 0.5x^2 - 0.25x + 1.2$

n)  $E = f(1) - a_{prox}$

0)  $E = 0.2 - 1.2 = -1$

$f(1) = -0.1(1)^4 - 0.15(1)^3 - 0.5(1)^2 - 0.25(1) + 1.2$

1)  $E = 0.2 - 0.95 = -0.75$

2)  $E = 0.2 - 0.45 = -0.25$

3)  $E = 0.2 - 0.3 = -0.1$

4)  $E = 0.2 - 0.2 = 0$