

Taller 23

x $f(x)$ $f''(x)$

x_{i-1}	0	6	0
x_i	1	3,8	
x_{i+1}	2	1	
	3	3,5	
	4	8	0

$$= (1-0) \cdot \cancel{f''(0)} + 2(2-0) f''(1) + (2-1) f''(2)$$

$$= \frac{6}{2-1} [1-3,8] + \frac{6}{1-0} [6-3,8]$$

Simplificar

$$4f''(1) + f''(2) = -16,8 + 13,2$$

$$4f''(1) + f''(2) = -3,6 \quad 1^{ra} \text{ ecuacion}$$

x	$f(x)$
0	6
x_{i-1}	1
x_i	3, 8
x_{i+1}	1
3	3, 5
4	8

$$= (2-1) f''(1) + 2(3-1) f''(2) + (3-2) f''(3)$$

$$= \frac{6}{3-2} [3,5-1] + \frac{6}{2-1} [3,8-1]$$

Simplificar

$$f''(1) + 4f''(2) + f''(3) = 15 + 16,8$$

$$f''(1) + 4f''(2) + f''(3) = 31,8 \quad 2^{da} \text{ ecuacion}$$

x	$f(x)$
0	6
1	3,8
x_{i-1} 2	1
x_i 3	3,5
x_{i+1} 4	8

$$= (3-2) \cdot f''(2) + 2(4-2) f''(3) + (4-3) \cdot \cancel{f''(4)}$$

$$= \frac{6}{4-3} [8-3,5] + \frac{6}{3-2} [1-3,5]$$

Simplificar

$$f''(2) + 4f''(3) = 27 - 15$$

$$f''(2) + 4f''(3) = 12 \quad 3^{ra} \text{ ecuacion}$$

Gauss Jordan

$$4f''(1) + f''(2) = -3,6$$

$$f''(1) + 4f''(2) + f''(3) = 31,8$$

$$f''(2) + 4f''(3) = 12$$

$$f''(1) = -3,021428571$$

$$f''(2) = 8,485714286$$

$$f''(3) = 0,8785714286$$

X	f(x)	f''(x)
0	6	0
1	3,8	f''(1)
2	1	f''(2)
3	3,5	f''(3)
4	8	0

Valor Para $x = 2,5$

$$f_3(2,5) = \frac{8,485714286}{6(3-2)} (3-2,5)^3 + \frac{0,8785714286}{6(3-2)}$$

$$\cdot (2,5-2)^3 + \left[\frac{1}{3-2} - \frac{8,485714286 \cdot (3-2)}{6} \right] (3-2,5)$$

$$+ \left[\frac{3,5}{3-2} - \frac{0,8785714286 \cdot (3-2)}{6} \right] (2,5-2)$$

$$f_3(2,5) = 1,664732143$$