

Diketahui data-data berikut $(0, -6)$; $(2, 4)$; $(4, 10)$

Tentukan perkiraan dari $f(1)$

Jawaban:

N-B Maju

$$f(x) \approx P_2(x) = f(x_0) + \Delta f(x_0) s + \frac{\Delta^2 f(x_0)}{2!} \cdot s(s-1)$$

x	f(x ₀)	Δf(x ₀)	Δ ² f(x ₀)
0	-6	10	-4
2	4	6	
4	10		

$h = 2$
 $s = \frac{x-0}{2} = \frac{x}{2}$
 $s_{mundur} = \frac{x-4}{2}$

$$f(x) \approx P_2(x) = f(x_0) + \Delta f(x_0) \cdot s + \frac{\Delta^2 f(x_0)}{2!} \cdot s(s-1)$$

$$= -6 + 10 \cdot \frac{x}{2} + \frac{(-4)}{2} \cdot \frac{x}{2} \left(\frac{x}{2} - 1 \right)$$

$$f(x) \approx -6 + 10 \cdot \frac{x}{2} + \frac{(-4)}{2} \cdot \frac{x}{2} \left(\frac{x}{2} - 1 \right)$$

$$f(1) \approx -6 + 10 \cdot \frac{1}{2} + \frac{(-4)}{2} \cdot \frac{1}{2} \left(\frac{1}{2} - 1 \right)$$

$$\approx -6 + 5 + (-2) \cdot \frac{1}{2} \left(-\frac{1}{2} \right)$$

$$\approx -6 + 5 + \frac{1}{2}$$

$$\approx -1 + \frac{1}{2}$$

$$\approx -\frac{1}{2}$$

$$\approx -0,5 //$$

N-6 Mundar

$$\begin{aligned}
 f(x) &\approx P_2(x) = f(x_2) + \Delta f(x_2) \cdot s + \frac{\Delta^2 f(x_2)}{2!} s(s+1) \\
 &= 10 + 6 \left(\frac{x-4}{2} \right) + \frac{(-4)}{2!} \left(\frac{x-4}{2} \right) \left(\frac{x-4}{2} + 1 \right) \\
 &= 10 + 6 \left(\frac{x-4}{2} \right) - \frac{4}{2} \left(\frac{x-4}{2} \right) \left(\frac{x-4}{2} + 1 \right)
 \end{aligned}$$

$$f(1) \approx 10 + 6 \left(\frac{1-4}{2} \right) - \frac{4}{2} \left(\frac{1-4}{2} \right) \left(\frac{1-4}{2} + 1 \right)$$

$$\approx 10 + 6 \left(\frac{-3}{2} \right) - \frac{4}{2} \left(\frac{-3}{2} \right) \left(\frac{-3}{2} + 1 \right)$$

$$\approx 10 + 6 \left(\frac{-3}{2} \right) - 2 \left(\frac{-3}{2} \right) \left(\frac{-3}{2} + 1 \right)$$

$$\approx -0,5 // \begin{pmatrix} 3 \\ 1 \end{pmatrix}$$

$$\approx$$