

Latihan soal

Diket data-data berikut :

 $(0, -6)$; $(2, 4)$; $(4, 10)$ Tent perkiraan dari $f(1)$

M. G Maju

| x | f(x) | $\Delta f(x)$ | $\Delta^2 f(x)$ |
|---|------|---------------|-----------------|
| 0 | -6 | 10 | |
| 2 | 4 | 6 | -4 |
| 4 | 10 | | |

$$h = 2$$

$$s = \frac{x - 0}{2} = \frac{x}{2}$$

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

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

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

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

$$\approx -6 + 5 + \frac{1}{2} \approx -1 + \frac{1}{2} \approx -\frac{1}{2} \approx -0,5$$

H. G Mundur

$$s = \frac{x - x_n}{h} = \frac{x - 9}{2}$$

$$f(x) \approx P_2(x) = f(x_2) + \nabla f(x_2) \cdot s + \frac{\nabla^2 f(x_2)}{2!} \cdot s(s+1)$$

$$= 10 + 6 \cdot \left(\frac{x-9}{2}\right) + \frac{(-6)}{2!} \cdot \frac{x-9}{2} \left(\frac{x-9}{2} + 1\right)$$

$$f(1) \approx 10 + 6 \cdot \left(\frac{1-9}{2}\right) + \frac{(-6)}{2} \cdot \frac{1-9}{2} \left(\frac{1-9}{2} + 1\right)$$

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

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

$$\approx 10 + (-9) + (3) \left(\frac{-1}{2}\right)$$

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

$$\approx -0,5$$