

### Latihan soal

Diketahui data-data berikut:  $(0, -6)$ ;  $(2, 4)$ ;  $(4, 10)$  tentukan perkiraan dari  $f(1)$

Pengyelesaian:

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

$f(x_0)$   
 $\Delta f(x_0)$   
 $\Delta^2 f(x_0)$

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

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

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

$$= -6 + 5x + (-2) \left(\frac{x}{2}\right) \left(\frac{x}{2} - 1\right)$$

$$= -6 + 5x + (-2) \left(\frac{x}{2}\right) \left(\left(\frac{x}{2}\right) - 1\right)$$

$$f(x) = P_2(x)$$

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

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

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

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

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

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