

fathor Raehim

Sool

Diketahui data-data berikut:

$(0, -6) : (2, 9) : (9, 10)$

Maju

Tentukan perkiraan dari $f(1)$

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

x	f(x)	$\Delta f(x)$	$\Delta^2 f(x)$
0	-6		
2	9	10	
9	10	6	-9

$$f(x_0) = -6$$

$$\Delta f(x_0) = 10$$

$$\Delta^2 f(x_0) = -9$$

$$h = 2$$

$$s = \frac{x - x_0}{h} = \frac{x - 0}{2} = \frac{x}{2}$$

$$f(x) \approx P_2(x) = -6 + 10\left(\frac{x}{2}\right) + \frac{-9}{2}\left(\frac{x}{2}\right)\left(\frac{x}{2} - 1\right)$$

$$= -6 + 5x - \frac{9}{4}x\left(\frac{x}{2} - 1\right)$$

$$= -6 + 5x - \frac{9}{4}x\left(\frac{x}{2} - 1\right)$$

$$f(1) \approx P_2(1) = -6 + 5(1) - \frac{9}{4}\left(\frac{1}{2} - 1\right)$$

$$= -6 + 5 - \frac{9}{4}\left(\frac{1}{2} - 1\right)$$

$$= -1 - \frac{9}{4}\left(-\frac{1}{2}\right)$$

$$= -1 + \frac{9}{8}$$

$$= -\frac{1}{8}$$

fathor Rachwan

Murder

x	f(x)	$\nabla f(x)$	$\nabla^2 f(x)$
0	-6		
2	9	10	-9
4	10	6	

$$f(x_2) = 10$$

$$\nabla f(x_2) = 6$$

$$\nabla^2 f(x_2) = -9$$

\downarrow
 x_n

$$h = 2$$

$$s = \frac{x - x_n}{h} = \frac{x - 4}{2}$$

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

$$= 10 + 6 \left(\frac{x-4}{2} \right) + \left(\frac{-9}{2} \right) \left(\frac{x-4}{2} \right) \left(\frac{x-4}{2} + 1 \right)$$

$$= 10 + 3(x-4) - (x-4) \left(\frac{x-2}{2} \right)$$

$$f(1) \approx P_2(1) = 10 + 3(1-4) - (1-4) \left(\frac{1-2}{2} \right)$$

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

$$= 10 - 9 - \frac{3}{2}$$

$$= 1 - \frac{3}{2}$$

$$= -\frac{1}{2} \quad "$$