

No  
Date

$$\begin{aligned} f(1) &= 10 + 3(1) - 12 - (1 - 4) \left( \frac{1-2}{2} \right) \\ &= 10 + 3 - 12 - (-3) \left( \frac{1-2}{2} \right) \\ &= 10 + 3 - 12 + 3 \left( \frac{1-2}{2} \right) \\ &= -0.5 \cdot \sqrt{-\frac{1}{2}} \end{aligned}$$



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

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

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

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

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

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

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

$$= -1 + \frac{1}{2} = -\frac{1}{2} = -0.5$$

# interpolasi Gregory mundur

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

$(0, -6), (2, 4), (4, 10)$   
 $h = 2$   
 $s = \frac{x - 4}{2}$

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

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

$$= 10 + 3 \cdot (x-4) - 2 \cdot \left(\frac{x-4}{2}\right) \left(\frac{x-4}{2} + 1\right)$$

$$= 10 + 3x - 12 - (x-4) \left(\frac{x-4}{2} + 1\right)$$

$$= 10 + 3x - 12 - (x-4) \cdot \frac{x-2}{2}$$

$$\begin{aligned}
 f(x) &= P_3(x) \\
 &= 20 + 8(x-4) + 4 \cdot \left(\frac{x-4}{2}\right) \left(\left(\frac{x-4}{2}\right) + 1\right) + \frac{1}{3} \cdot \left(\frac{x-4}{2}\right) \\
 &\quad \left(\left(\frac{x-4}{2}\right) + 1\right) \left(\left(\frac{x-4}{2}\right) + 2\right)
 \end{aligned}$$

$$\begin{aligned}
 f(1) &= 20 + 8(1-4) + 4 \cdot \left(\frac{1-4}{2}\right) \left(\left(\frac{1-4}{2}\right) + 1\right) + \frac{1}{3} \cdot \left(\frac{1-4}{2}\right) \\
 &\quad \left(\left(\frac{1-4}{2}\right) + 1\right) \left(\left(\frac{1-4}{2}\right) + 2\right)
 \end{aligned}$$

Contoh soal:

diketahui data-data berikut:

$(0, 6); (2, 4); (4, 10)$

Tentukan perkiraan dari  $f(1)$

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

$\Delta f(x_0)$  (points to 10)  
 $\Delta^2 f(x)$  (points to -4)

$$h = 2$$

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