No.

Date

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Matkul : Prak. Metode Numerik

x	f(x)
1,2	2,80832
1,4	7,25824
1,6	14,16576
1,8	24,61568
2	40

▷ Interpolasi Metode Lagrange f(1,7)

$x_0 = 1,4$, $y_0 = 7,25824$

$x_1 = 1,6$, $y_1 = 14,16576$

$x_2 = 1,8$, $y_2 = 24,61568$

$x_3 = 2$, $y_3 = 40$

$$f(1,7) = \frac{(1,7-1,6)(1,7-1,8)(1,7-2)}{(1,4-1,6)(1,4-1,8)(1,4-2)}.(7,25824) - \frac{(1,7-1,4)(1,7-1,8)(1,7-2)}{(1,6-1,4)(1,6-1,8)(1,6-2)}.(14,16576) - \frac{(1,7-1,4)(1,7-1,6)(1,7-2)}{(1,8-1,4)(1,8-1,6)(1,8-2)}.(24,61568) - \frac{(1,7-1,4)(1,7-1,6)(1,7-1,8)}{(2-1,4)(2-1,6)(2-1,8)}.(40)$$

$$f(1,7) = \frac{(0,1)(-0,1)(-0,3)}{(-0,2)(-0,4)(-0,6)}.(7,25824) - \frac{(0,3)(-0,1)(-0,3)}{(0,2)(-0,2)(-0,4)}.(14,16576) - \frac{(0,3)(0,1)(-0,3)}{(0,4)(0,2)(-0,2)}.(24,61568) - \frac{(0,3)(-0,1)(-0,3)}{(0,6)(0,4)(0,2)}.(40)$$

$f(1,7) = (-0,45369) - (7,96824) - (13,89632) - (-2,5)$

$= 16,86092$

1. a Beda Maju :

$$f'(1,7) = \frac{f_1 - f_0}{h}$$

$$= \frac{F(1,8) - F(1,7)}{0,1}$$

$$= \frac{24,61568 - 18,86092}{0,1} = 57,5476$$

b. Beda Mundur :

$$f'(1,7) = \frac{f_0 - f_{-1}}{h}$$

$$= \frac{F(1,7) - F(1,6)}{0,1}$$

$$= \frac{18,86092 - 14,16576}{0,1} = 46,9516$$

2. a. $f'(1,6)$ dengan Beda Pusat :

$$F'(1,6) = \frac{f_1 - f_{-1}}{h}$$

$$= \frac{24,61568 - 14,16576}{0,2} = 34,5376$$

b. ▷ $f'(1,1)$

Akan lebih tepat digunakan menggunakan rumus Beda Maju karena data x dan nilai fungsinya di tabel yang tersedia hanya ada titik x setelah titik $x = 1,1$

▷ $f'(2,2)$

Menggunakan rumus Beda Mundur karena data yang tersedia hanya ada titik x sebelum titik $x = 2,1$