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Metode Numerik.

Nama : Tarisa Dwi.S.
NIM : 20541012G.

Jawab :

fungsi : $f(x) = 25x^3 - 6x^2 - 6x^2 + 7x - 88$

$\Delta x = (xi+1) - (xi) \Rightarrow (3) - (2) \Rightarrow 1$

Deret taylor : $f(x_i+1) = f'(xi)\frac{\Delta x}{1!} + f''(xi)\frac{\Delta x^2}{2!} + f'''(xi)\frac{\Delta x^3}{3!} + \ldots + f^n(xi)\frac{\Delta x^n}{n!} + Rn.$

- Deret taylor orde 0

$f(xi+1) = (xi) \approx F(3) = F(2) \approx 1$

▷ Deret taylor orde 1

Turunan ke-1 fungsi $\Rightarrow F(x) = 75x^2 - 12x + 7$

$F'(xi=2) = 75(2^2) - 12(2) + 7 = 300 - 24 + 7 = 283$

Jadi, $F(xi+1) = f(xi) + F'(xi)\frac{\Delta x}{1!} = 1 + 283 \cdot \frac{1}{1} = 284$ //

▷ Deret taylor orde 2.

Turunan ke-2 fungsi $\Rightarrow F(x) = 75x^2 - 12x + 7$

$F'(xi=2) = 150(2) = 300 - 12 = 288.$

Jadi $F(xi+1) = F(x_i) + F'(x_i)\frac{\Delta x}{1!} + F'\epsilon(xi)\frac{\Delta x^2}{2!}$

$= 284 + 288 = \frac{(1)^2}{2!} = 284 + 114 = 428$ //

▷ Deret taylor orde 3.

Turunan ke 3, fungsi $\Rightarrow F(x) = 150$

$F'''(x_i = 2) = 150$

Jadi, $F(xi+1) = F(x_i) + F'(x_i)\frac{\Delta x}{1!} + F''(xi)\frac{\Delta x^2}{2!} + F'''(xi)\frac{\Delta x^3}{3!}$

$= 428 + \frac{150\,(1)^3}{3!} = 428 + 25 = 453$ //

VISION