

P₁ Simplifique con 3 cifras Significativas

$$155,4081104999 = 155,41$$

$$0,754910899 = 0,754911$$

$$709,430999997 = 709,44$$

$$637,998000009 = 637,99$$

$$4,99959999 = 4,9996$$

$$\tilde{x} = 0,5 \quad \Delta \tilde{x} = 0,001$$

$$x \in |0,499, 0,501|$$

$$f(x) = 3 \sin(x^2 - 1)$$

$$f'(x) = 6x \cos(x^2 - 1)$$

$$\Delta f(0,5) = |6(0,5) \cos(0,5^2 - 1)| \Delta x$$

$$\Delta f(0,5) = 2,999742983 \times 10^{-3}$$

$$f(x) \in \left| -0,0392667 - 2,9997429 \times 10^{-3}, \right. \\ \left. -0,0392687 + 2,9997429 \times 10^{-3} \right|$$

$$f(x) \in \left| -0,042268, -0,03626994 \right|$$

Punto 4

$$x = 3 \quad h = 0,001$$

$$f(x) = 0,2x^5 + 0,1x^4 - 0,5x^3 - 0,2x^2 + x + 2$$

$$f'(x) = 1x^4 + 0,4x^3 - 1,5x^2 - 0,4x + 2$$

$$x_{i-1} = 2 \quad \left| \begin{array}{l} f(x_{i-1}) \end{array} \right.$$

$$x_i = 3 \quad \left| \begin{array}{l} f(x_i) \end{array} \right.$$

$$x_{i+1} = 4 \quad \left| \begin{array}{l} f(x_{i+1}) \end{array} \right.$$

$$x_{i-2} = 1 \quad \left| \begin{array}{l} f(x_{i-2}) = 1,5 \end{array} \right.$$

$$x_i = 3 \quad \left| \begin{array}{l} f(x_i) = 79,1 \end{array} \right.$$

$$x_{i+2} = 5 \quad \left| \begin{array}{l} f(x_{i+2}) = 637,5 \end{array} \right.$$

Hacia Adelante

$$f'(3) \approx \frac{712,46,4}{0,001} = -39200$$

$$f_t = \left| \frac{46,4 - (-39200)}{46,4} \right| = 845,827$$

Diferencia centrada

$$f'(3) \approx \frac{201 - 7,2}{2(0,001)} = 96900$$

$$f_t = \left| \frac{46,4 - 96900}{46,4} \right| = 2087,36$$

Segunda diferencia centrada

$$f''(3) \approx \frac{201 - 2(46,4) + 7,2}{0,001^2} = 115400000$$

Hacia adelante

$$f''(3) \approx \frac{637,5 - 2(201) + (46,4)}{0,001^2} = 281900000$$

Hacia Atrás

$$f''(3) \approx \frac{46,4 - 2(7,2) + 1,5}{0,001^2} = 335000000$$

Valores Verdaderos de la derivada

$$f'(x) = 1x^4 + 0,4x^3 - 1,5x^2 - 0,4x + 2$$

$$f'(3) = 1(3)^4 + 0,4(3)^3 - 1,5(3)^2 - 0,4(3) + 2$$

$$f''(x) = 4x^3 + 1,2x^2 - 3x - 0,4$$

$$f''(3) = 4(3)^3 + 1,2(3)^2 - 3(3) - 0,4$$