Study of the function, the value at a point and its Taylor expansion

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$$f^{(0)}(x) = \frac{\sin(5.50 \cdot x) + x^{4.00}}{6.00}$$

Function value at a point $x = 16.30$:

$$f(16.30) = 11765.36$$

First differential before simplification:

$$f^{(1)}(x) = \frac{(\cos(5.50 \cdot x) \cdot (0.00 \cdot x + 5.50 \cdot 1.00) + 4.00 \cdot x^{3.00} \cdot 1.00) \cdot 6.00 - (\sin(5.50 \cdot x) + x^{4.00}) \cdot 0.00}{6.00^{2.00}}$$

After simplification:

$$f^{(1)}(x) = \frac{(\cos(5.50 \cdot x) \cdot 5.50 + 4.00 \cdot x^{3.00}) \cdot 6.00}{36.00}$$

Taylor series expansion:

$$f(x) = f^{(0)}(x) + \frac{1}{1!} \cdot f^{(1)}(x) + \frac{1}{2!} \cdot f^{(2)}(x) + o(x^2)$$

$$f^{(1)}(x) = \frac{(\cos(5.50 \cdot x) \cdot 5.50 + 4.00 \cdot x^{3.00}) \cdot 6.00}{36.00}$$

$$f^{(2)}(x) = \frac{216.00 \cdot (-30.25 \cdot \sin(5.50 \cdot x) + 12.00 \cdot x^{2.00})}{1296.00}$$