$$f''(x) = \frac{f(x+h) - 2f(x) + f(x-h)}{h^2}$$

$$f''(x_J) = \frac{f(x_{J+1}) - 2f(x_J) + f(x_{J-1})}{h^2}$$

$$f^4(x_J) = \left[\left(\frac{f(x_{J+1}+h) - 2f(x_J+h) + f(x_{J-1}+h)}{h^2}\right) 2\left(-\frac{f(x_{J+1}) - 2f(x_J) + f(x_{J-1})}{h^2}\right) \ldots \right.$$
$$\left. \ldots + \left(\frac{f(x_{J+1}-h) - 2f(x_J-h) + f(x_{J-1}-h)}{h^2}\right)\right] / h^2$$

Orden $O(h^5)$:

$$= \frac{\left(\frac{f(x_{J+2}) - 2f(x_{J+1}) + f(x_J) - 2f(x_{J+1}) + 4f(x_J) - 2f(x_{J-1}) + f(x_J) - 2f(x_{J-1}) + f(x_{J-2})}{h^2}\right)}{h^2}$$

$$\Rightarrow \frac{\frac{f(x_{J+2}) + 6f(x_J) - 8f(x_{J-1}) + f(x_{J-2})}{h^2}}{\frac{h^2}{1}}$$

$$= \frac{f(x_{J+2}) + 6(x_J) - 8f(x_{J-1}) + f(x_{J-2})}{h^4}$$