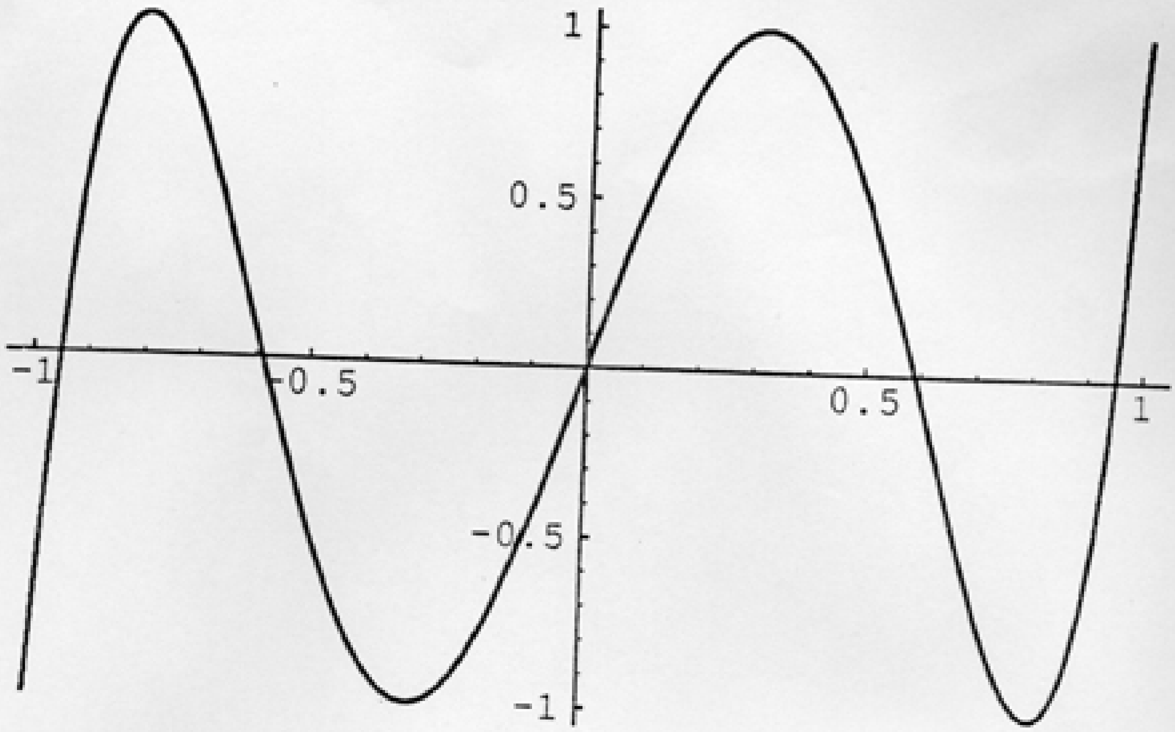
$$T_5(x) = 2x\left(8x^4 - 8x^2 + 1\right) - \left(4x^3 - 3x\right) = 16x^5 - 20x^3 + 5x$$



Wracamy do aproksymacji (Chebyshev)

$$f(x) = a_1\varphi_1(\tilde{x}) + a_2\varphi_2(\tilde{x}) + a_3\varphi_3(\tilde{x}) + a_4\varphi_4(\tilde{x}) \qquad x \in [-1, 1]$$

Aproksymacja dla $\alpha \leq x \leq \beta$, $k \geq 1$.

Nowe zmienne

$$\tilde{x} = \frac{2x - \alpha - \beta}{\beta - \alpha}$$

$$x = \alpha \Rightarrow \tilde{x} = -1$$

$$x = \beta \Rightarrow \tilde{x} = 1$$

$$\varphi_k(x) = T_{k-1}\left(\frac{2x - \alpha - \beta}{\beta - \alpha}\right), \qquad \alpha \leq x \leq \beta, \qquad k \geq 1$$