№ 2

$$I = \int_{-1}^{1} f(x)\,dx = \sum_{i=1}^{n} \frac{2}{n} f(t_i)$$

$$\int_a^b f(x)\,dx = \frac{b-a}{n} \sum_{i=1}^{n} f\left(\frac{b+a}{2} + \frac{b-a}{2} t_i\right)$$

$$\begin{cases} t_1 + t_2 + t_3 = 0 \\ t_1^2 + t_2^2 + t_3 = 1 \\ t_1^3 + t_2^3 + t_3^3 = 0 \end{cases} \Rightarrow t_1 = -0.707207,\ t_2 = 0,\ t_3 = 0.70707$$

$$\int_0^{\pi/4} f(x)\sin(2x)\,dx = \frac{\pi}{12} \sum_{i=1}^{3} \sin 2t_i' \, f(t_i')$$

$$t_1' = \frac{\pi}{8} - \frac{\pi}{8} \cdot 0{,}707207 \simeq 0{,}114979,$$

$$t_2' = \frac{\pi}{8} \simeq 0{,}392699$$

$$t_3' = \frac{\pi}{8} + \frac{\pi}{8} \cdot 0{,}707207 \simeq 0{,}670418$$

$$I = \frac{\pi}{8}\left(\frac{2}{3}\sin 2t_1' f(t_1') + \frac{2}{3}\sin 2t_2' f(t_2') + \frac{2}{3}\sin 2t_3' f(t_3')\right) =$$

$$= \frac{\pi}{8}\left(0{,}151958 \cdot f(0{,}114979) + 0{,}471404 \cdot f(0{,}392699) + 0{,}649116\, f(0{,}670418)\right)$$