10.3

$$f(a) = \sum_{k=0}^{r} \frac{e^{x_k} + 2020}{1 + \ln(x_k^2 + 1)} \cdot \left[y_k - a\left(\cos(2x_k + 2020) + x_k^3\right)\right]^2 \Rightarrow$$

$\Rightarrow$ Niech $\frac{e^{x_k} + 2020}{1 + \ln(x_k^2 + 1)} = w_k$

Wtedy $f(a) = \sum_{k=0}^{r} w_k \left[y_k - a\left(\cos(2x_k + 2020) + x_k^3\right)\right]^2$

Rybliżamy y_k przez $\ln\{\cos(2x_k + 2020) + x^3\}$

$= g_0(x)$

czyli

$$\langle g_0, g_0 \rangle \cdot a = \langle g_0, y \rangle$$

$$a = \frac{\langle g_0, y \rangle}{\langle g_0, g_0 \rangle} = \frac{\sum_{k=0}^{r} g_0(x_i) \cdot y_i \cdot w_k(x_i)}{\sum_{k=0}^{r} w_k(x_i) \cdot g_0(x_i)^2}$$