$\boxed{Z3}$

$$f(a) = \sum_{k=0}^{r} \overbrace{\frac{e^{x_k} + 2020}{1 + \ln(x_k^2 + 1)}}^{\alpha} \Big[y_k - a\big(\cos(2x_k + 2020) + x_k^3\big) \Big]^2$$

$$f'(a) = \sum_{k=0}^{r} \alpha \cdot 2 \Big[y_k - a\big(\cos(2x_k + 2020) + x_k^3\big) \Big] \cdot \Big(-\big(\cos(2x_k + 2020) + x_k^3\big) \Big)$$

$$= -2 \sum_{k=0}^{r} \alpha y_k \big(\cos(2x_k + 2020) + x_k^3\big) - \alpha a \underbrace{\big(\cos(2x_k + 2020) + x_k^3\big)^2}_{\geq 0}$$

α decyduje czy w $f'(a) = 0$ jest minimum

$$\alpha = \frac{\overset{>0}{e^{x_k} + 2020}}{\underset{>0}{1 + \ln(x_k^2 + 1)}} > 0$$

$$f'(a) = -2 \sum_{k=0}^{r} \alpha y_k \big(\cos(2x_k + 2020) + x_k^3\big) - \alpha a \big(\cos(2x_k + 2020) + x_k^3\big)^2$$

$$= -2\alpha \sum_{k=0}^{r} y_k \big(\cos(2x_k + 2020) + x_k^3\big) + 2\alpha a \sum_{k=0}^{r} \big(\cos(2x_k + 2020) + x_k^3\big)^2$$

$$f'(a) = 0 \quad \Rightarrow \quad a = \frac{\cancel{2\alpha} \sum_{k=0}^{r} y_k \big(\cos(2x_k + 2020) + x_k^3\big)}{\cancel{2\alpha} \sum_{k=0}^{r} \big(\cos(2x_k + 2020) + x_k^3\big)^2}$$

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