

89c)

$$\frac{\sin z^2 - z^2}{z^8} = \frac{\sin z^2}{z^8} - \frac{1}{z^6} =$$

$$= \frac{1}{z^8} \sum_{n=0}^{\infty} \frac{(-1)^n}{(2n+1)!} z^{2(2n+1)} - \frac{1}{z^6} =$$

$$= \cancel{\frac{1}{z^8} \sum_{n=1}^{\infty} \frac{(-1)^n}{(2n+1)!} z^{4n-6}} = \sum_{k=-\infty}^{\infty} a_k z^k,$$

$$a_k = \begin{cases} 0, & k < -2 \text{ lub } (k \neq 4n-6 \text{ de der } n) \\ \frac{(-1)^n}{(2n+1)!}, & \text{igly } \underline{k = 4n-6} \text{ de } \text{pony } n \in \mathbb{N} \end{cases}$$