$$\text{non-cst poly } p \in {}^{\mathbb{C}}\underset{\omega}{\overset{0}{\triangle}}\mathbb{C} \Longrightarrow \overset{-1}{p}(0) \neq \varnothing$$

$${}^{z}p = z^{n}\left(p_{n} + \frac{p_{n-1}}{z} + \cdots + \frac{p_{0}}{z^{n-1}}\right)$$

$$\lceil {}^{z}p \rceil = \lceil z \rceil^{n} \left\lceil p_{n} + \frac{p_{n-1}}{z} + \cdots + \frac{p_{0}}{z^{n-1}} \right\rceil \geqslant \lceil {}^{0}p \rceil \Longrightarrow \bigvee_{o}^{\mathbb{C}} \bigwedge_{z}^{\mathbb{C}} \lceil {}^{z}p \rceil \geqslant \lceil {}^{o}p \rceil$$

$$\text{poly } {}^{o+z}p = \sum_{0 \leqslant k} z^{k}\, a_{k}$$

$$p \neq \text{ cst } \Longrightarrow {}^{o+z}p \neq \text{ cst } \Longrightarrow \bigwedge_{m>0}^{\min} a_{m} \neq 0 \Longrightarrow {}^{o+z}p = a_{0} + \sum_{m \leqslant k} z^{k}\, a_{k}$$

$$\lceil a_{0} \rceil^{2} = \lceil {}^{o}p \rceil^{2} \leqslant \lceil {}^{o+z}p \rceil^{2} = \overbrace{\bar{a}_{0} + \sum_{m \leqslant i} \bar{z}^{i}\bar{a}_{i}}\, \overbrace{a_{0} + \sum_{m \leqslant j} z^{j}a_{j}} = \lceil a_{0} \rceil^{2} + \bar{z}^{m}\, \bar{a}_{m}\, a_{0} + \bar{a}_{0}\, z^{m}\, a_{m} + \sum_{m \leqslant i}\sum_{m \leqslant j} \bar{z}^{i}\, z^{j}\, \bar{a}_{i}\, a_{j}$$

$$\Longrightarrow 0 \leqslant \bar{z}^{m}\, \bar{a}_{m}\, a_{0} + \bar{a}_{0}\, z^{m}\, a_{m} + \sum_{m \leqslant i}\sum_{m \leqslant j} \bar{z}^{i}\, z^{j}\, \bar{a}_{i}\, a_{j} \underset{z = r\vartheta}{=} r^{m}\, \underbrace{\bar{\vartheta}^{m}\bar{a}_{m}a_{0} + \bar{a}_{0}\vartheta^{m}a_{m}} + \sum_{m \leqslant i}\sum_{m \leqslant j} r^{i+j}\, \vartheta^{j-i}\, \bar{a}_{i}\, a_{j}$$

$$\Longrightarrow 0 \leqslant \bar{\vartheta}^{m}\, \bar{a}_{m}\, a_{0} + \bar{a}_{0}\, \vartheta^{m}\, a_{m} + \sum_{m \leqslant i}\sum_{m \leqslant j} r^{i+j-m}\, \vartheta^{j-i}\, \bar{a}_{i}\, a_{j} \quad \underset{r \rightsquigarrow 0}{\overset{i+j-m>0}{\Longrightarrow}} \quad 0 \leqslant a_{m}\, \vartheta^{m}\, \bar{a}_{0} + a_{0}\, \bar{a}_{m}\, \bar{\vartheta}^{m}$$

$$0 \leqslant a_{m}\, \overbrace{\vartheta e^{\pi i/m}}^{m}\, \bar{a}_{0} + a_{0}\, \bar{a}_{m}\, \overline{\vartheta e^{\pi i/m}}^{m} = a_{m}\, \vartheta^{m}\, e^{\pi i}\, \bar{a}_{0} + a_{0}\, \bar{a}_{m}\, \bar{\vartheta}^{m}\, e^{\pi i} = -a_{m}\, \vartheta^{m}\, \bar{a}_{0} - a_{0}\, \bar{a}_{m}\, \bar{\vartheta}^{m}$$

$$\Longrightarrow a_{m}\, \vartheta^{m}\, \bar{a}_{0} + a_{0}\, \bar{a}_{m}\, \bar{\vartheta}^{m} = 0 \Longrightarrow 0 = \underbrace{a_{m}\vartheta^{m}\bar{a}_{0} + a_{0}\bar{a}_{m}\bar{\vartheta}^{m}}\, \vartheta^{m} = a_{m}\, \vartheta^{2m}\, \bar{a}_{0} + a_{0}\, \bar{a}_{m}$$

$$\underset{\vartheta \text{ bel}}{\Longrightarrow} \quad a_{m}\, \bar{a}_{0} = 0 = a_{0}\, \bar{a}_{m} \underset{a_{m} \neq 0}{\Longrightarrow} {}^{o}p = a_{0} = 0$$