Tarea 1

Problema 1

|z| = 1

$$Im\left[rac{z}{(z+1)^2}
ight]=0$$

Problema 2

$$\begin{aligned} |\frac{\alpha+z}{1+\bar{\alpha}z}| &\leq 1 \\ |\frac{\alpha+z}{1+\bar{\alpha}z}| &> 1 \\ |\alpha+z| &> |1+\bar{\alpha}z| \\ |\alpha+z|^2 &> |1+\bar{\alpha}z|^2 \\ (\alpha+z)\overline{(\alpha+z)} &> (1+\bar{\alpha}z)\overline{(1+\bar{\alpha}z)} \\ (\alpha+z)(\bar{\alpha}+\bar{z}) &> (1+\bar{\alpha}z)(1+\alpha\bar{z}) \\ \alpha\bar{\alpha}+\alpha\bar{z}+z\bar{\alpha}+z\bar{z} &> 1+\alpha\bar{z}+\bar{\alpha}z+|\alpha z| \end{aligned}$$

Problema 3

$$z=rac{1+i}{\sqrt{2}}$$
 $z^{n^2}=e^{i heta/\phi}$ $rac{1}{z^{n^2}}$ 36

Problema 4

$$|1+ab|+|a+b| \geq \sqrt{|a^2-1|\cdot|b^2-1|}$$
 $|1+ab|+|a+b| \geq \cdots$ $|1+ab|+|-a-b|| \geq \cdots$