TP 3 Complejos

Ejercicio 8. Resolver la siguiente ecuación en ℂ.

g) $z^6\left(\sqrt{3}+i\right)^3 = (1-i)+\frac{2}{1-i}$

$$z^6 = \frac{(1-i)(1-i)+2}{(1-i)\left(\sqrt{3}+i\right)^3} = \frac{(1-2i-1)+2}{(1-i)\left(\sqrt{3}+i\right)^3} = \frac{2-2i}{(1-i)8i} = \frac{2(1-i)}{8i(1-i)} = \frac{2}{8i} = \frac{1}{4i} = \frac{1i}{4i\,i} = \frac{i}{4i^2} = -\mathbf{\frac{1}{4}}\ \boldsymbol{i}$$

$z^6 = -\frac{1}{4}\ i = \left(\frac{1}{4}\right)_{270°}$ $z = \sqrt[6]{\left(\frac{1}{4}\right)_{270°}}$ $z_k = \sqrt[6]{\frac{1}{4}}_{\frac{270°+360°.k}{6}}$	k=0	$z_0 = \sqrt[6]{\frac{1}{4}}_{\frac{270°+360°.0}{6}}$	$\boldsymbol{z_0 = \sqrt[6]{\frac{1}{4}}_{45°}}$
	k=1	$z_1 = \sqrt[6]{\frac{1}{4}}_{\frac{270°+360°.1}{6}}$	$\boldsymbol{z_1 = \sqrt[6]{\frac{1}{4}}_{105°}}$
	k=2	$z_2 = \sqrt[6]{\frac{1}{4}}_{\frac{270°+360°.2}{6}}$	$\boldsymbol{z_2 = \sqrt[6]{\frac{1}{4}}_{165°}}$
	k=3	$z_3 = \sqrt[6]{\frac{1}{4}}_{\frac{270°+360°.3}{6}}$	$\boldsymbol{z_3 = \sqrt[6]{\frac{1}{4}}_{225°}}$
	k=4	$z_4 = \sqrt[6]{\frac{1}{4}}_{\frac{270°+360°.4}{6}}$	$\boldsymbol{z_4 = \sqrt[6]{\frac{1}{4}}_{285°}}$
	k=5	$z_5 = \sqrt[6]{\frac{1}{4}}_{\frac{270°+360°.5}{6}}$	$\boldsymbol{z_5 = \sqrt[6]{\frac{1}{4}}_{345°}}$