TP 3 Complejos

Ejercicio 8. Resolver la siguiente ecuación en ℂ.

h) $\dfrac{z^3\left(2e^{\frac{\pi}{6}i}\right)^2}{1-i} = 2\sqrt{2}\,e^{\frac{\pi}{4}i}$

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

$$z^3 = \dfrac{2\left(1-\sqrt{3}i\right)}{4} = \dfrac{1}{2}-\dfrac{\sqrt{3}i}{2} = 1_{300°}$$

$z = \sqrt[3]{1_{300°}}$ $\quad$ $z_k = 1_{\frac{300+360°.k}{3}}$	k=0	$z_0 = 1_{\frac{300°+360°.0}{3}}$	$\boldsymbol{z_0 = 1_{100°}}$
	k=1	$z_1 = 1_{\frac{300°+360°.1}{3}}$	$\boldsymbol{z_1 = 1_{220°}}$
	k=2	$z_2 = 1_{\frac{300°+360°.2}{3}}$	$\boldsymbol{z_2 = 1_{340°}}$