

[13/09/2023]

• $z = \frac{1}{\sqrt{2}} (1+i)$ z^8 ?

$$z^8 = \frac{(1+i)^8}{\sqrt{2}^8} = \left(\frac{1+i}{\sqrt{2}} \right)^8 = \left(\frac{1}{\sqrt{2}} + \frac{i\sqrt{2}}{2} \right)^8$$

$$z = \frac{1}{\sqrt{2}} + \frac{i}{\sqrt{2}} \Rightarrow |z| = \sqrt{\left(\frac{\sqrt{2}}{2}\right)^2 + \left(\frac{\sqrt{2}}{2}\right)^2} = \sqrt{1} = 1$$



$$\varphi = \frac{\pi}{4} \text{ mismo } \varphi \text{ de } z \text{ y } z^8$$

↳ POR TRIG.:

$$z = \frac{1}{\sqrt{2}} (1+i) = 1 \cdot e^{i\pi/4} \quad (2\pi/20)$$

$$\Rightarrow z^8 = 1^8 (e^{i\pi/4})^8 = e^{i2\pi} = e^0 = 1$$

