

Exercício 4.

a) $z_1 = -7 + 7i$

$$z_1 = r e^{i\theta}$$

$$r = |z_1| = \sqrt{z_1 \times \bar{z}_1} = \sqrt{(-7 + 7i) \times (-7 - 7i)} \\ = \sqrt{49 + 49} = \sqrt{98} = 7\sqrt{2}$$

$$r \cos \theta = -7$$

$$\cos \theta = \frac{-7}{7\sqrt{2}} = \frac{-1}{\sqrt{2}} = -\frac{\sqrt{2}}{2}$$

$$r \sin \theta = 7$$

$$\sin \theta = \frac{7}{7\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$\arg(z_1) = \theta = \frac{3\pi}{4} + 2k\pi \quad k \in \mathbb{Z}$$

$$z_1 = 7\sqrt{2} e^{i(\frac{3\pi}{4} + 2k\pi)} \quad k \in \mathbb{Z}$$