

Complex numbers in standard form

Recall that the standard form of complex numbers is $a + bi$, where $a, b \in \mathbb{R}$

Exercise 1.2

Prove the following properties for $z, w \in \mathbb{C}$

- a. $\mathcal{R}e(z) = \mathcal{I}m(iz)$
- b. $\mathcal{I}m(z) = \mathcal{R}e(-iz)$
- c. $\bar{z} = 2\mathcal{R}e(z) - z$
- d. $|z + w|^2 + |z - w|^2 = 2(|z|^2 + |w|^2)$