

**Question 1.** Let  $f : \mathbb{C} \rightarrow \mathbb{C}$  defined by  $f(z) = \frac{1}{z}$ . Show that  $f$  is continuous on  $\mathbb{C} \setminus \{0\}$ .

**Question 2.** Let  $f : \mathbb{C} \rightarrow \mathbb{C}$  be defined by  $f(z) = \frac{\bar{z}}{|z|}$ . Show that  $f$  is not continuous at  $z = 0$ .

**Question 3.** Let  $f : \mathbb{C} \rightarrow \mathbb{C}$  be defined by  $f(z) = |z|^2$ . Show that  $f$  is continuous on  $\mathbb{C}$ .

**Question 4.** Let  $f : \mathbb{C} \rightarrow \mathbb{C}$  be defined by  $f(z) = \Re(z)$ . Show that  $f$  is continuous on  $\mathbb{C}$ .

**Question 5.** Let  $f : \mathbb{C} \rightarrow \mathbb{C}$  be defined by  $f(z) = \Im(z)$ . Show that  $f$  is continuous on  $\mathbb{C}$ .