

MTH 317/617

Quiz #3

1. Suppose that $z_n \in \mathbb{C}$ satisfies $z_n \rightarrow 0$ as $n \rightarrow \infty$ and $z_n \neq 0$. Prove that

$$\lim_{n \rightarrow \infty} z_n e^{i \cos(|z_n|)} = 0.$$

Since,

$$|z_n e^{i \cos(|z_n|)}| = |z_n|$$

it follows that $\lim_{n \rightarrow \infty} z_n e^{i \cos(|z_n|)} = 0$.