

# MATH 338 – Complex Analysis I

## QUIZ 3

22.05.2021

1. Let  $f$  have an isolated singularity at  $z_0$ . Show that if  $\lim_{z \rightarrow z_0} |f(z)| = \infty$ , then the singularity cannot be essential.
2. Let  $f(z) = \frac{1}{z^5 + 2z^3 + z}$ . Calculate the residue of  $f$  at  $z = i$ . (Show all your work.)