

[gex55] Applications of L'Hospital's rule

Invoke L'Hospital's rule to evaluate the following limits:

$$(i) \quad \lim_{z \rightarrow i} \frac{z^{10} + 1}{z^6 + 1}, \quad (ii) \quad \lim_{z \rightarrow 0} \frac{1 - \cos z}{z^2}, \quad (iii) \quad \lim_{z \rightarrow 0} \frac{1 - \cos z}{\sin^2 z}.$$

Solution: