

PROBLEM:

Simplify the following complex-valued expressions. Give your answer in polar form. Reduce the answers to a simple numerical form.

(a) For $z = -\sqrt{3} - j3$, evaluate $\Im\{ze^{-j\pi/2}\}$.

(b) For $z = -\sqrt{3} - j3$, evaluate $1/z^*$.

(c) For $z = -\frac{1}{2} - j\frac{1}{2}\sqrt{3}$, evaluate z^{300} .

(d) For $z = -\sqrt{3} - j3$, evaluate $z^{1/3}$.