

PROBLEM:

Simplify the following complex-valued expressions:

(a) $3e^{j\pi/3} + 4e^{-j\pi/6}$

(b) $(\sqrt{3} - j3)^{10}$

(c) $(\sqrt{3} - j3)^{-1}$

(d) $(\sqrt{3} - j3)^{1/3}$ (How many different answers can be found?)

(e) $\Re\{je^{-j\pi/3}\}$

Give the answers in *both* Cartesian ($x + jy$) and polar form ($re^{j\theta}$).