

## 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 ( $re^{j\theta}$ ).