

PROBLEM:

Solve the following equation for M and ψ . Obtain *all* possible answers. Use the phasor method, and provide a geometrical diagram to explain the answer.

$$5 \cos(\omega_0 t) - 4 \cos(\omega_0 t + \psi) = M \cos(\omega_0 t + \pi/4)$$

HINT: describe the figure in the z -plane given by the set $\{z : z = 5 - 4e^{j\psi}\}$ where $0 \leq \psi \leq 2\pi$.