

## PROBLEM:

Solve the following complex-valued equations. Reduce the answers to a simple numerical form.

(a) Find all solutions of  $z^6 = -1$ . Express your answers for  $z$  in polar form. How many *different* solutions exist?

(b) The following equation depends on  $n$  and  $T$ . Whenever  $T$  is assigned a value, the equation must then be true for all  $n$ .

$$e^{j(\pi/5)n} = e^{j37\pi nT} \quad \text{for all } n$$

Find all possible values of  $T$  for which the equation will be true.