

## PROBLEM:

Given a feedback filter defined via the recursion:

$$y[n] = -0.9 y[n - 6] + x[n] \quad (\text{DIFFERENCE EQUATION}) \quad (1)$$

- (a) Find the  $z$ -transform operator representation for the system in (1).
- (b) Find the poles of the system and plot their location in the  $z$ -plane.