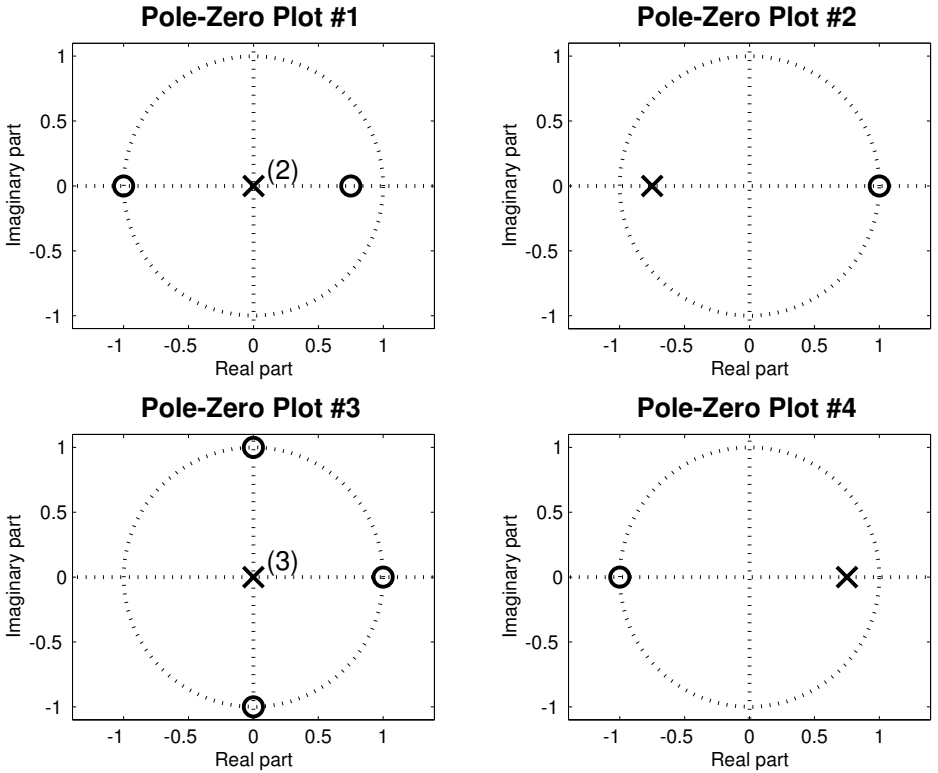
PROBLEM:



For each of the Pole-zero plots plots (1–4), determine the difference equation that defines the system.

1:	2:	3:	4:

$\mathcal{S}_1$: $y[n] = x[n] - x[n-1] + x[n-2]$

$\mathcal{S}_2$: $y[n] = x[n] - x[n-1] + x[n-2] - x[n-3]$

$\mathcal{S}_3$: $y[n] = x[n] + \frac{1}{4}x[n-1] - \frac{3}{4}x[n-2]$

$\mathcal{S}_4$: $y[n] = \frac{1}{3}x[n] - x[n-1] + x[n-2] - \frac{1}{3}x[n-3]$

$\mathcal{S}_5$: $y[n] = 0.4y[n-1] + x[n] + x[n-1]$

$\mathcal{S}_6$: $y[n] = 0.75y[n-1] + x[n] + x[n-1]$

$\mathcal{S}_7$: $y[n] = -0.75y[n-1] + x[n] - x[n-1]$

$\mathcal{S}_8$: $y[n] = 0.75y[n-1] + x[n] - x[n-1]$