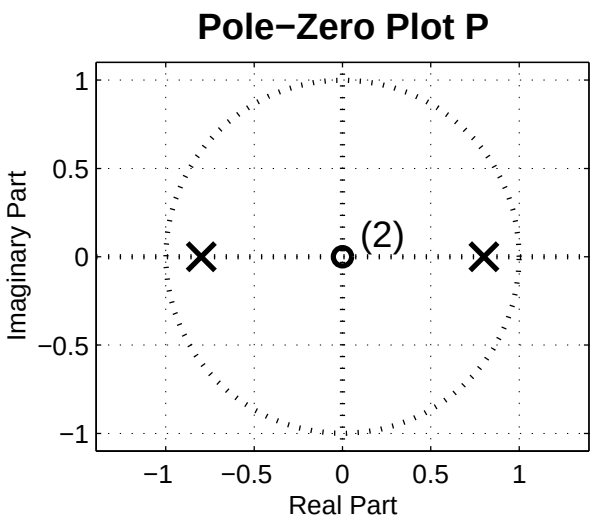
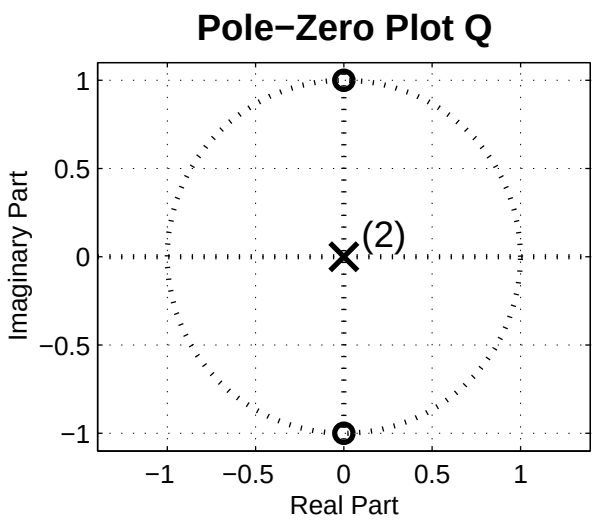
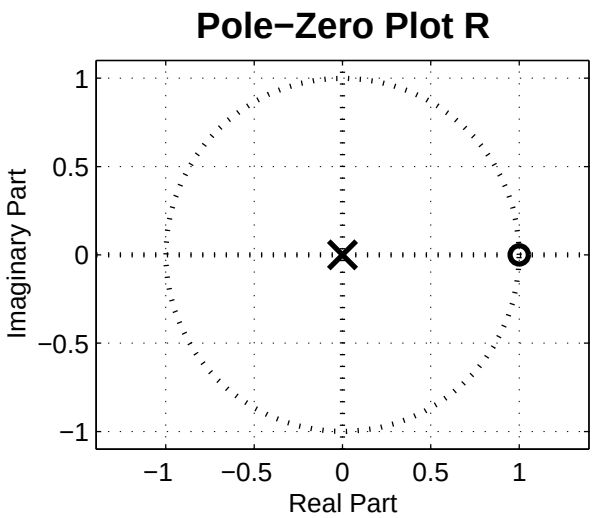
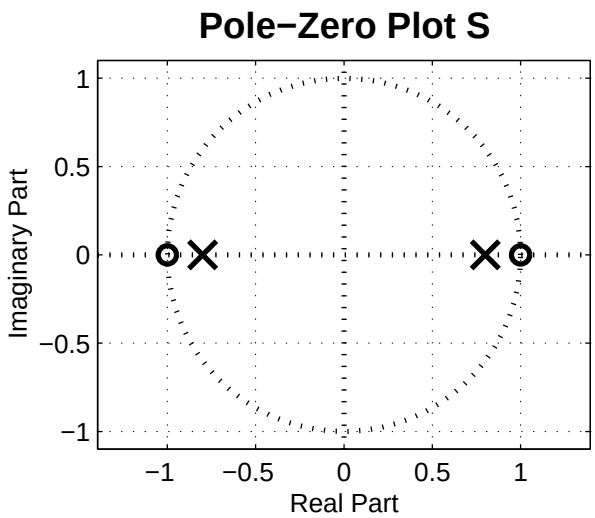
PROBLEM:









For each of the pole-zero plots (P, Q, R, S), determine which one of the following systems (specified by either an impulse response $h[n]$ or a difference equation) matches the pole-zero plot.

$\mathcal{S}_1$: $h[n] = (-0.8)^n u[n] - (0.8)^n u[n]$

$\mathcal{S}_2$: $h[n] = \sum_{k=0}^{3} \delta[n-k]$

$\mathcal{S}_3$: $y[n] = 0.64y[n-2] + x[n] + x[n-2]$

$\mathcal{S}_4$: $h[n] = \delta[n] + \delta[n-2]$

$\mathcal{S}_5$: $h[n] = (0.8)^n u[n] + (-0.8)^n u[n]$

$\mathcal{S}_6$: $y[n] = x[n-1] - x[n-2]$

$\mathcal{S}_7$: $y[n] = 0.64y[n-2] + x[n] - x[n-2]$

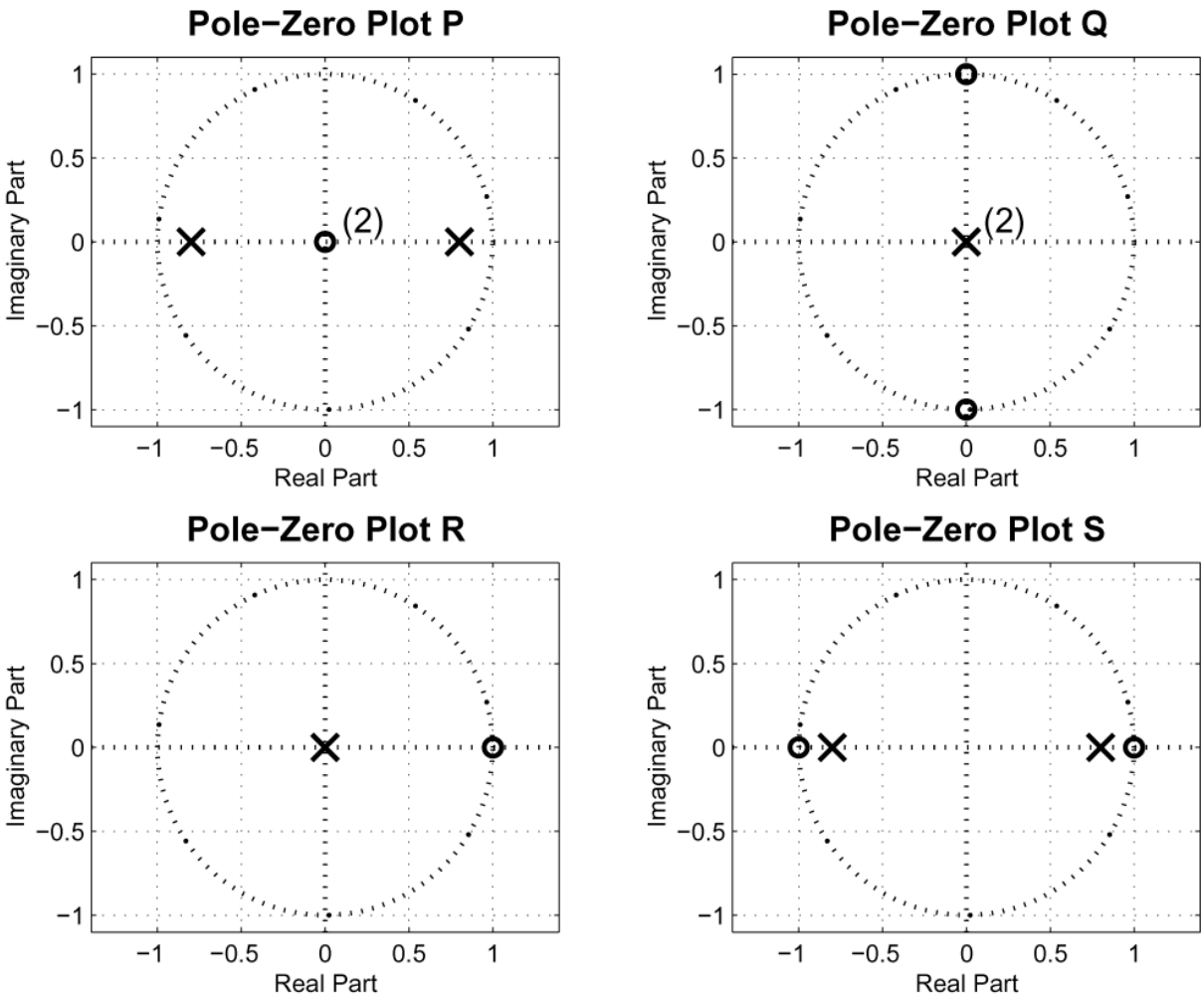
$\mathcal{S}_8$: $y[n] = x[n] - x[n-1]$

Mark your answer in the following table:

POLE-ZERO PLOT	SYSTEM ($\mathcal{S}_\#$)	POLE-ZERO PLOT	SYSTEM ($\mathcal{S}_\#$)
P		Q	
R		S	

McClellan, Schafer and Yoder, *Signal Processing First*, ISBN 0-13-065562-7.
Prentice Hall, Upper Saddle River, NJ 07458.

SOLUTION



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Mark your answer in the following table:

POLE-ZERO PLOT	SYSTEM ($\mathcal{S}_\#$)	POLE-ZERO PLOT	SYSTEM ($\mathcal{S}_\#$)
P	S_5	Q	S_4
R	S_8	S	S_7