



(a) Which of the above pole-zero plots represents the system whose frequency response is given in the following graph?



- (b) Now assume that each of the systems represented by the above pole-zero plots has impulse response  $h_k[n]$ , where k is the index shown in the title of the pole-zero plot.
  - (i) Which of the systems are FIR systems?
  - (ii) In the table below, indicate with an X each of the systems for which  $h_k[n] * e^{j\pi n} = 0$ , where \* denotes convolution.

System #	1	2	3	4	5
$h_k[n] * e^{j\pi n} = 0??$					







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FIR??			Х		Х	

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Need Zero	System #	1	2	3	4	5
at $Z = -1$	$h_k[n] * e^{j\pi n} = 0??$	Х				Х