Signals and Systems MATLAB HW4

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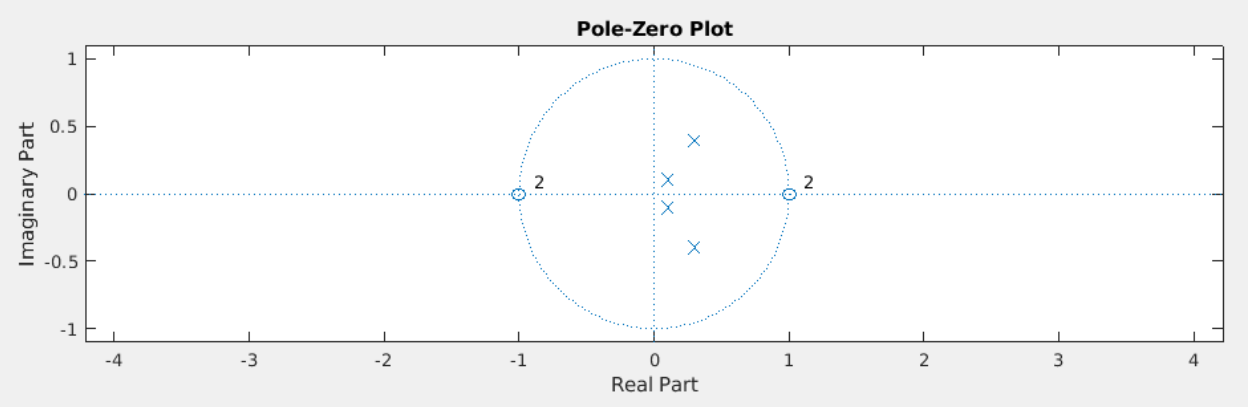
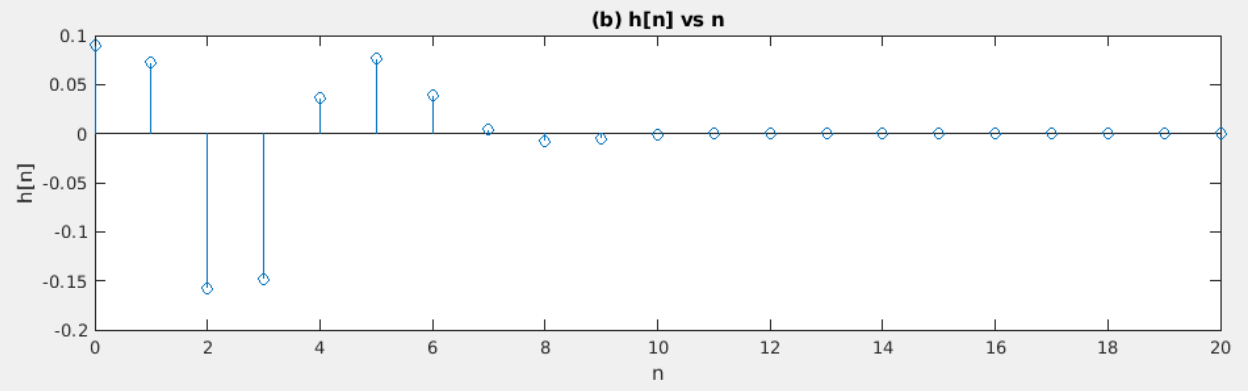
(a) Pole-Zero Plot



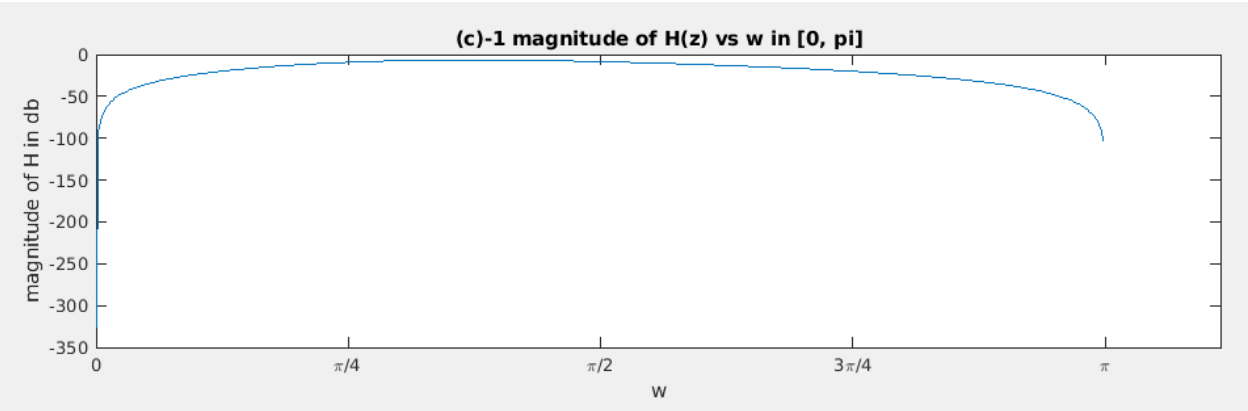
$ROC: |z| > 0.5$

(b) $h[n] vs\ n\ for\ n = 0 \sim 20$

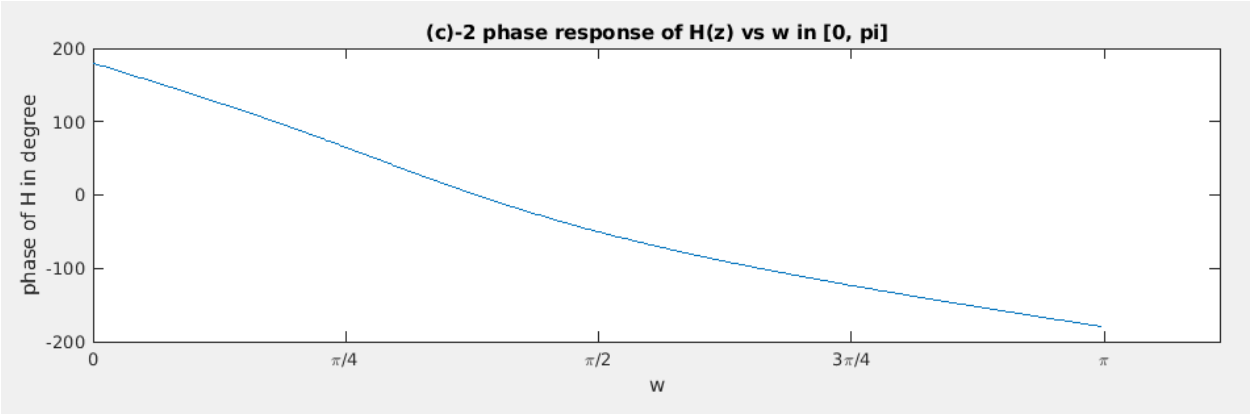


$\vec{r}$: Residues of the partial fraction, returned as a vector, $\vec{p}$: Pole of the partial fraction, returned as a vector, and $\vec{k}$: Direct terms, returned as a row vector

(c)



Unit of vertical-axis: dB

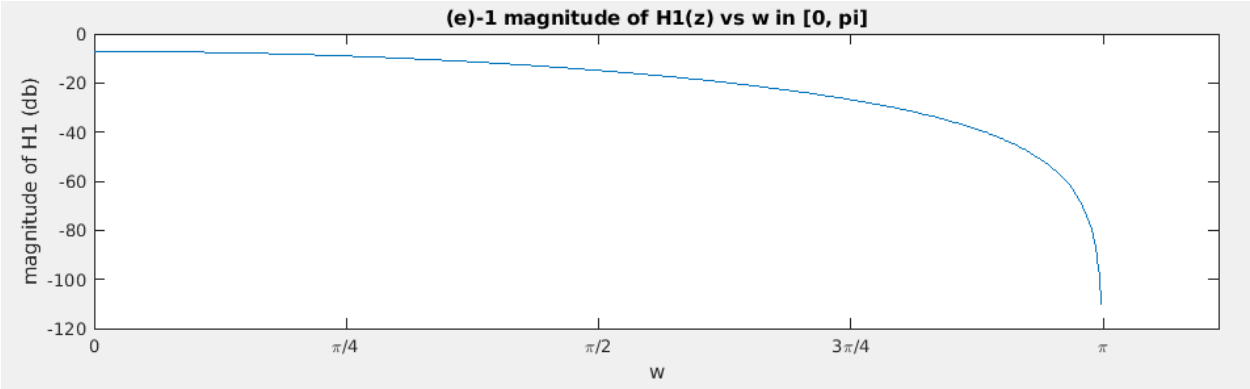


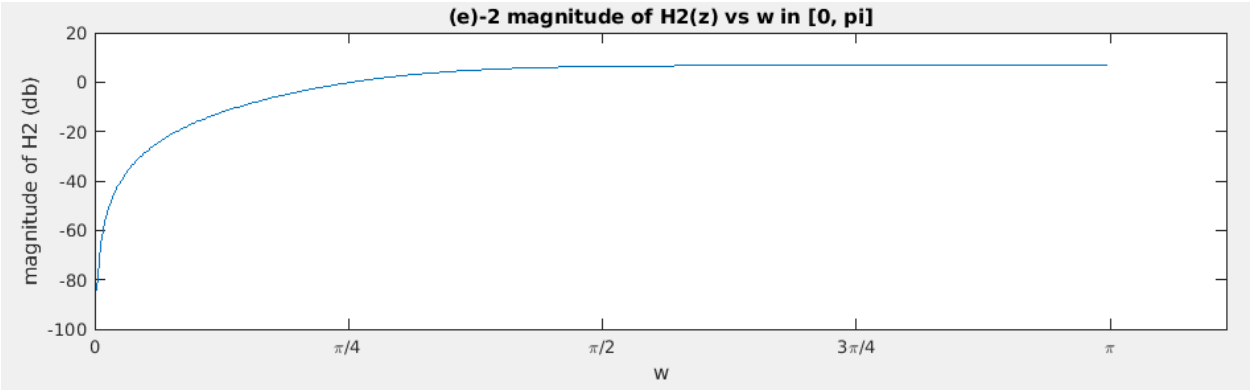
(d) $H(z) = H_1(z)H_2(z)$

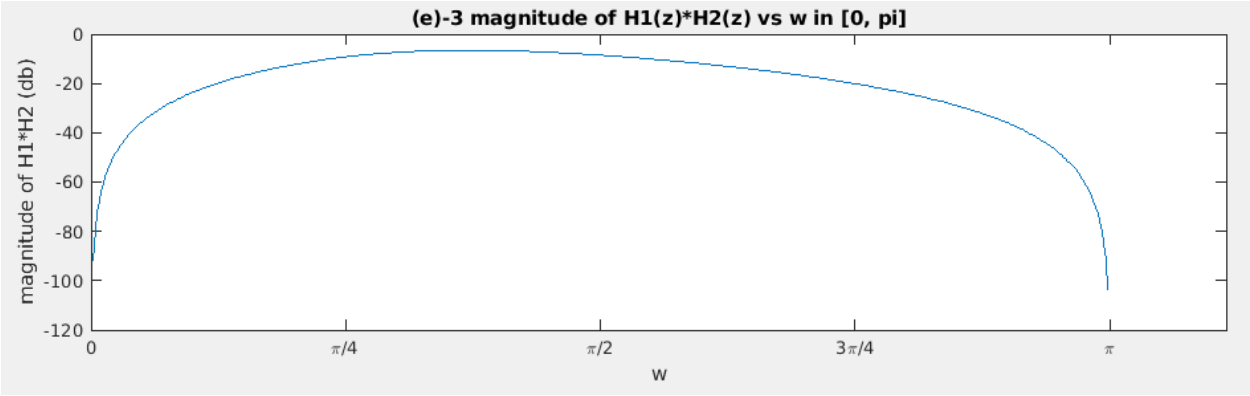
$$H_1(z) = \frac{0.09z^2 + 0.18z + 0.09}{z^2 - 0.2z + 0.02}$$

$$H_2(z) = \frac{z^2 - 2z + 1}{z^2 - 0.6z + 0.25}$$

(e)



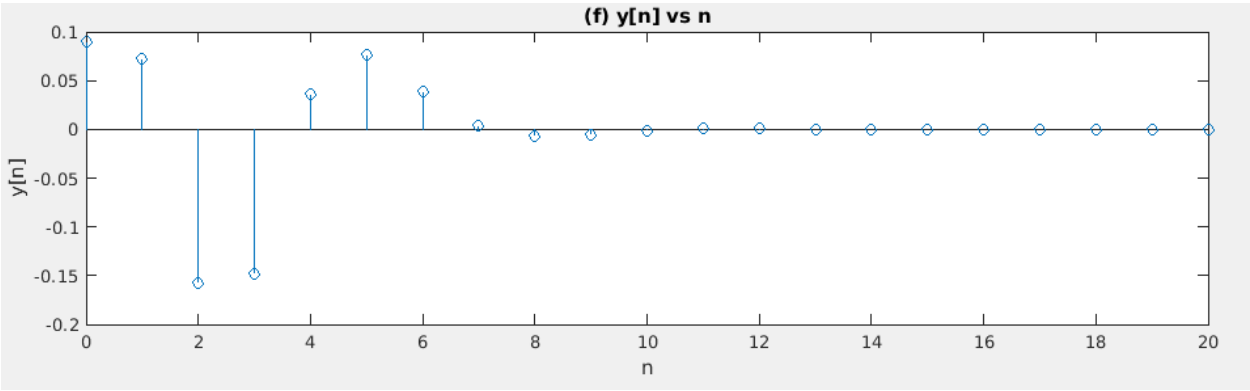




Unit of vertical-axis: dB

The result in (e)-3 is similar to that in (c).

(f)



It is equal to the result in (b).