## **EXERCISE 7.9:** If $H_{LP}(e^{j\hat{\omega}})$ is an ideal LPF with its cutoff frequency at $\hat{\omega}_{co}$ as plotted in Fig. 7-5, show that the frequency response of an ideal HPF with cutoff frequency $\hat{\omega}_{co}$ can be represented by

 $H_{\rm up}(e^{j\hat{\omega}}) = 1 - H_{\rm up}(e^{j\hat{\omega}})$ 

*Hint*: Make a plot of the function 
$$1 - H_{LP}(e^{j\hat{\omega}})$$
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