(d) Consider a system with transfer function $H_2(s)$, with $b = a$. Compute the magnitude and phase responses, and discuss why this might be called an all-pass filter.

14.8. Construct Bode plots for the frequency responses of the four following systems:

(a) $H_1(s) = \dfrac{5s + 1}{s + 10}$

(b) $H_2(s) = \dfrac{s + 10}{5s + 1}$

(c) $H_3(s) = \dfrac{5s + 1}{s^2 + 3s + 1}$

(d) $H_4(s) = \dfrac{s + 10}{(s + 2)(s^2 + 10s + 100)}$

14.9. Four systems have the pole-zero plots shown in Fig. 14.28. For each system determine from the pole-zero plot

(a) the highest frequency break point in the frequency response and the slope of the high frequency magnitude asymptote

(b) the asymptotic high frequency phase response

(c) the low frequency asymptotic magnitude behavior
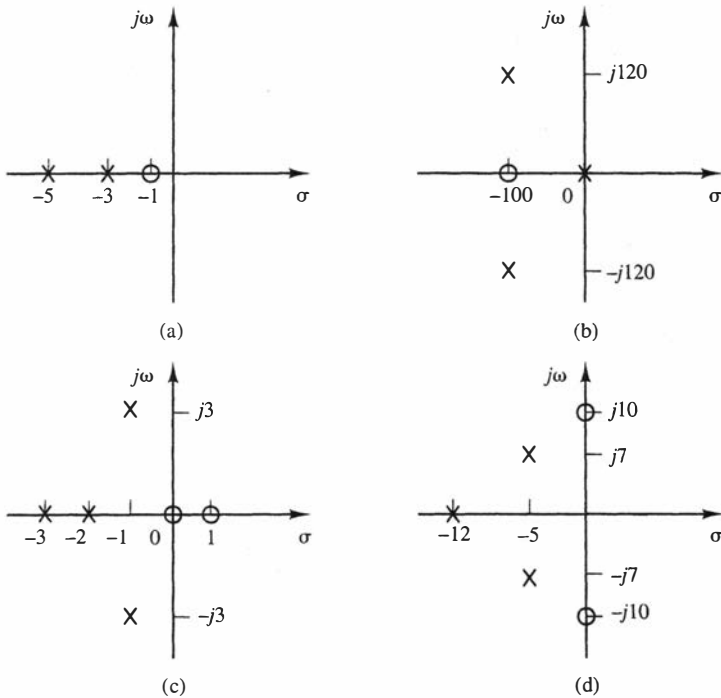
(d) the low frequency phase shift

Figure 14.28: Four pole-zero plots.