

Department of Mechanical Engineering
2.14 Analysis and Design of feedback Control Systems

Fall Term 2003
Problem Set 8

Assigned: Oct. 29, 2003

Due: Nov. 5, 2003

Reading: Nise, Chapter 10

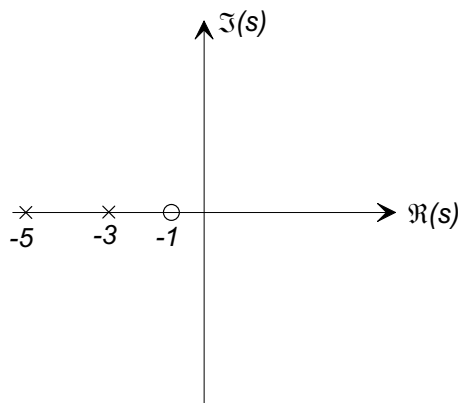
Feel free to use Matlab in the following problems.

Problem 1: Nise, Ch. 10, Problem 10 (p. 676 4th Ed., p. 671 3rd Ed.)

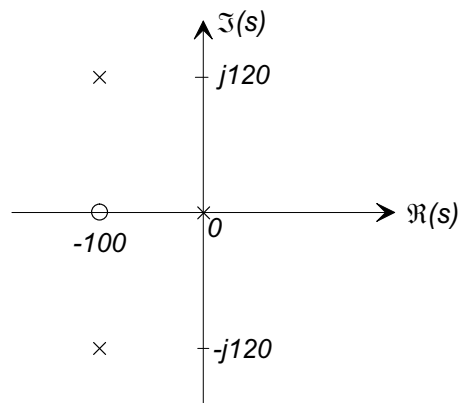
Problem 2: Nise, Ch. 10, Problem 11 (p. 676 4th Ed., p. 671 3rd Ed.)

Problem 3: Nise, Ch. 10, Problem 13 (p. 677 4th Ed., p. 672 3rd Ed.)

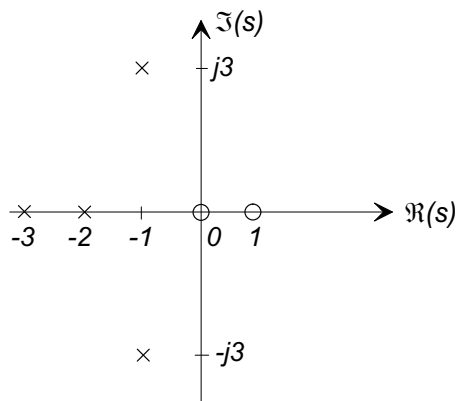
Problem 4: Four systems have the pole-zero plots shown below. For each system deter-



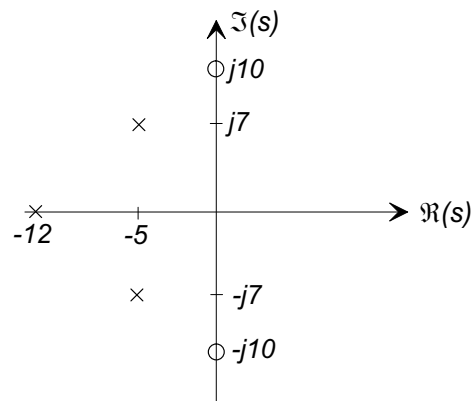
(a)



(b)



(c)



(d)

mine 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, and (d) the low frequency phase shift.

Problem 5: Nise, Ch. 10, Problem 34 (p. 683 4th Ed., p. 668 3rd Ed.)

Problem 6: Nise, Ch. 10, Problem 38 (p. 686 4th Ed., p. 681 3rd Ed.)