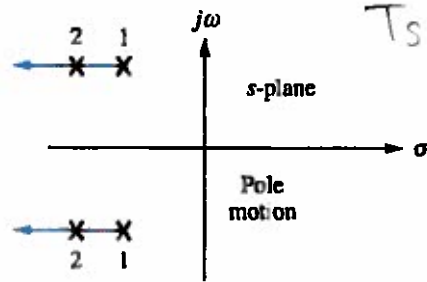
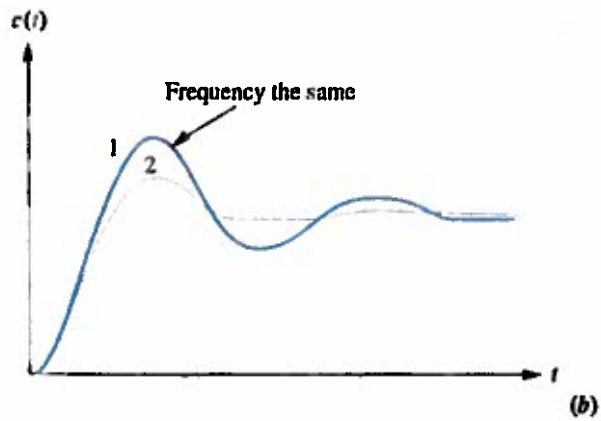
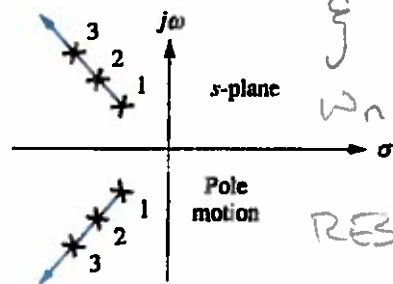
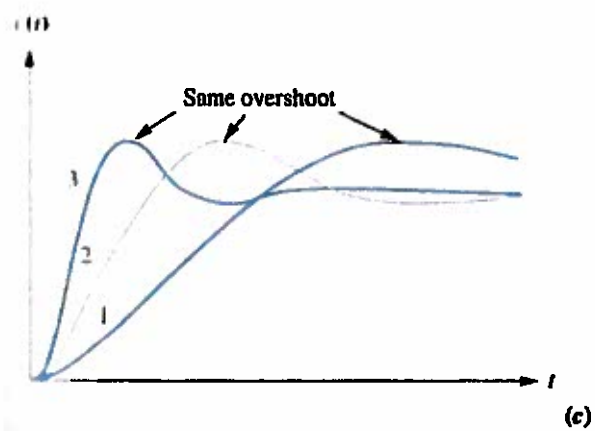


$T_p$  IS DECREASING



$T_s$  IS DECREASING



$\zeta$  CONSTANT  
 $\omega_n$  INCREASING

RESPONSE IS  
FASTER

**Figure 4.19**  
Time responses  
of second-order underdamped  
systems as poles move:  
• with constant real part;  
• with constant imaginary part;  
• with constant damping ratio