

Modern Control Systems
Assignment Translation
for the Fifth Lesson

Automatic Control Systems, Second Edition

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16. The open-loop zeros and poles of control systems are shown in Fig. T3.6. Please construct the root loci of the closed-loop systems.

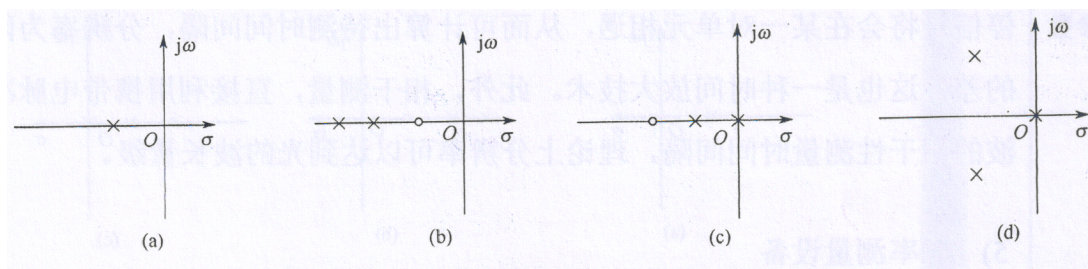


Fig. T3.6

17. Given the following open-loop transfer functions of control systems, construct the root loci of the systems. Please also draw the asymptotes of the root loci and mark the intersections of the asymptotes and the real axis.

$$\begin{aligned}
 (1) \quad G_0(s) &= \frac{K}{(s+2)(s+3)} & (2) \quad G_0(s) &= \frac{K}{(s+1)(s+2)(s+3)} \\
 (3) \quad G_0(s) &= \frac{K(s+2)}{(s+3)(s^2+2s+2)} & (4) \quad G_0(s) &= \frac{K}{s(s+2)(s^2+2s+5)} \\
 (5) \quad G_0(s) &= \frac{K}{(s+1)^2(s+4)^2}
 \end{aligned}$$