

1. B-6-12

2. The open-loop transfer function of a unity feedback is

$$G(s) = \frac{0.25(s+a)}{s^2(s+1)}$$

Sketch the root loci when  $a$  varies from 0 to  $+\infty$ .

3. The open-loop transfer function is

$$G(s) = \frac{2.6}{s(0.1s+1)(Ts+1)}, \quad H(s) = 1$$

Sketch the root loci when  $T$  varies from 0 to  $+\infty$ .

4. The open-loop transfer function of a unity feedback is

$$G(s) = \frac{K(1-s)}{s(s+2)}$$

Sketch the root loci when  $K$  varies from 0 to  $+\infty$  and determine the breakaway point and the points the root loci cross the imaginary axis.