

1	.....	2
2	.....	2
3	.....	3
3.1	.....	3
3.2	.....	4
3.3	.....	6
3.4	.....	9
3.5	.....	12
3.6	.....	14
3.7	.....	19

1

2

$$y(t) = 1 - e^{-\zeta \omega_n t} \sin(\omega_n t)$$

$$\frac{KG(s)H(s)}{LN(s)H(s)} = 18^n 2^{k+1} 18$$

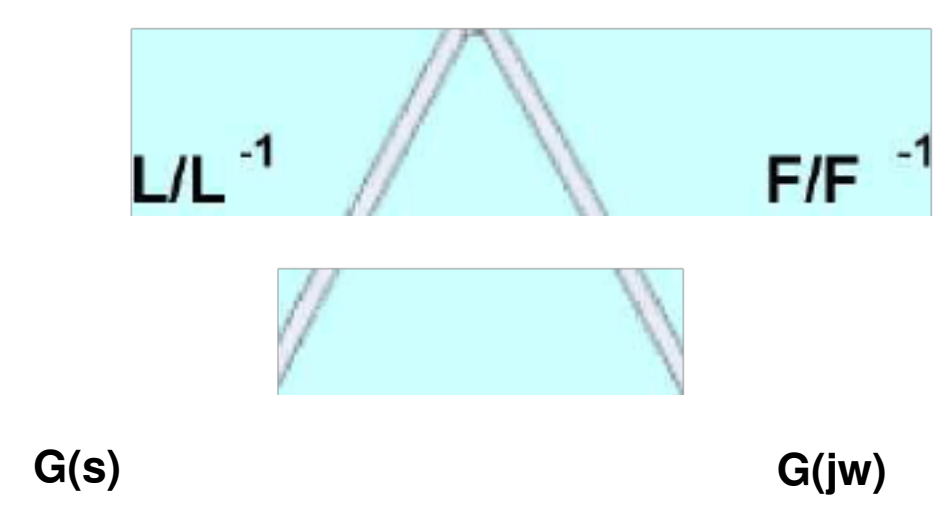
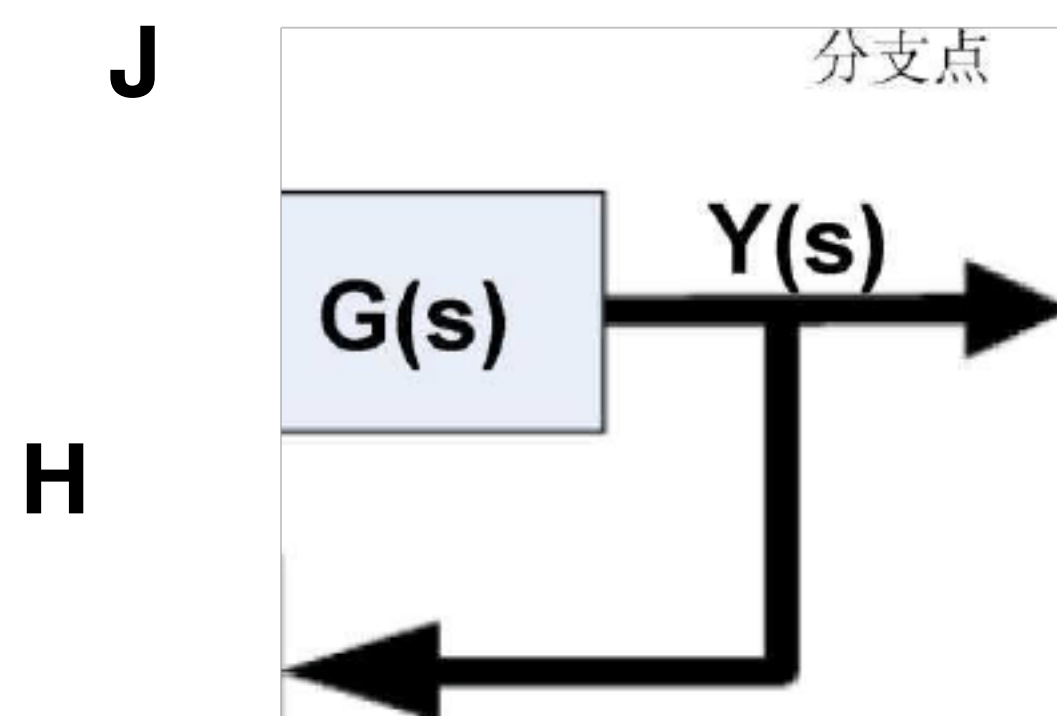
5

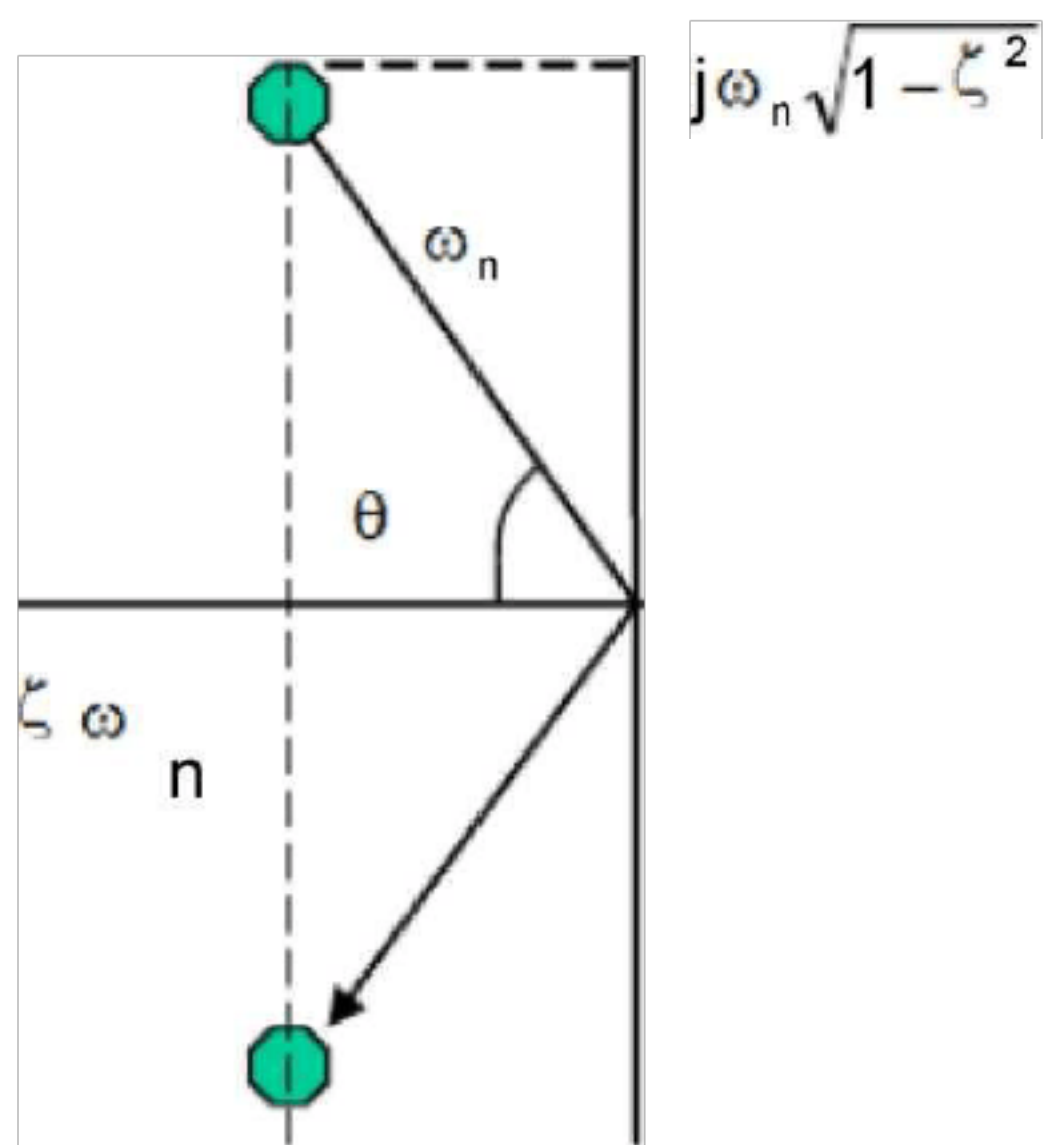
3

3.1

R (s)

■
(s)





1

$$T_s = \frac{1}{\zeta \omega_n} = 100$$

$\nu = \arccos \zeta$

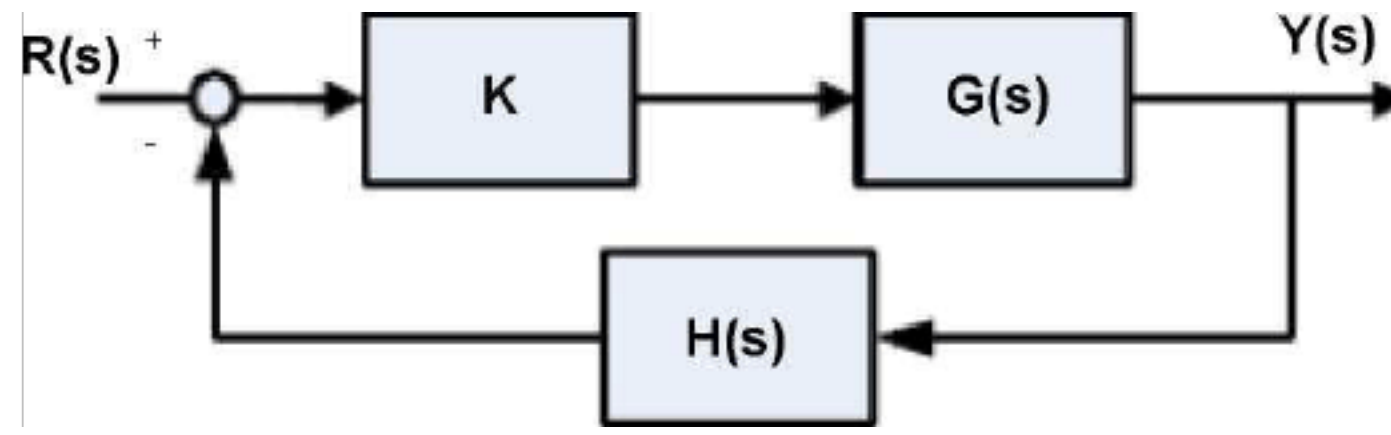
$$K_p = \lim_{s \rightarrow 0} s G(s), e_{ss} = \frac{1}{1 + K_p}$$

$$K_v = \lim_{s \rightarrow 0} s G(s), e_{ss} = \frac{1}{K_v}$$

$G(s), Q_s$

2

3.3

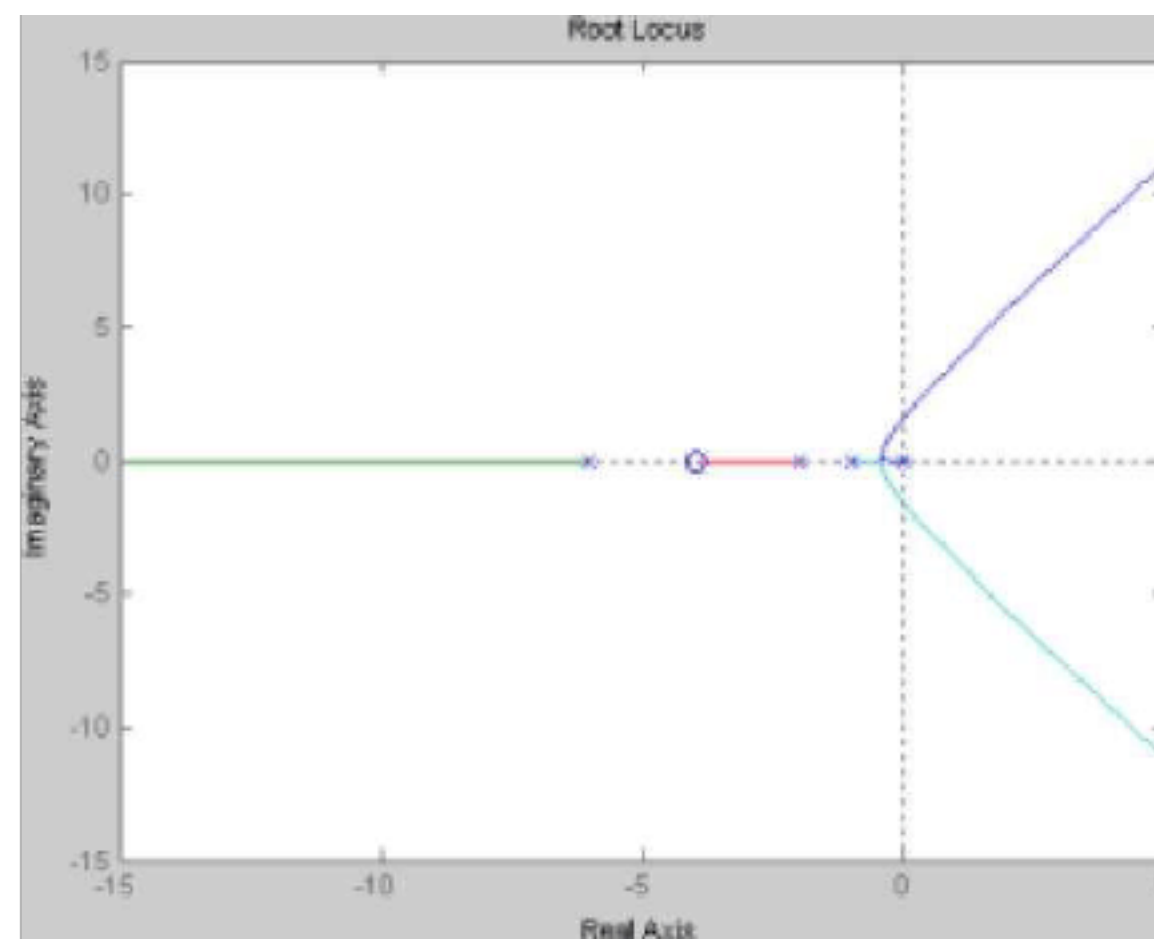


$$q(s) = 1 \quad KG(s)H(s) = 0$$

$$\|KG(s)H(s)\| = 1$$

$$\angle KG(s)H(s) = 180^\circ = (2k+1) 180^\circ$$

^8)



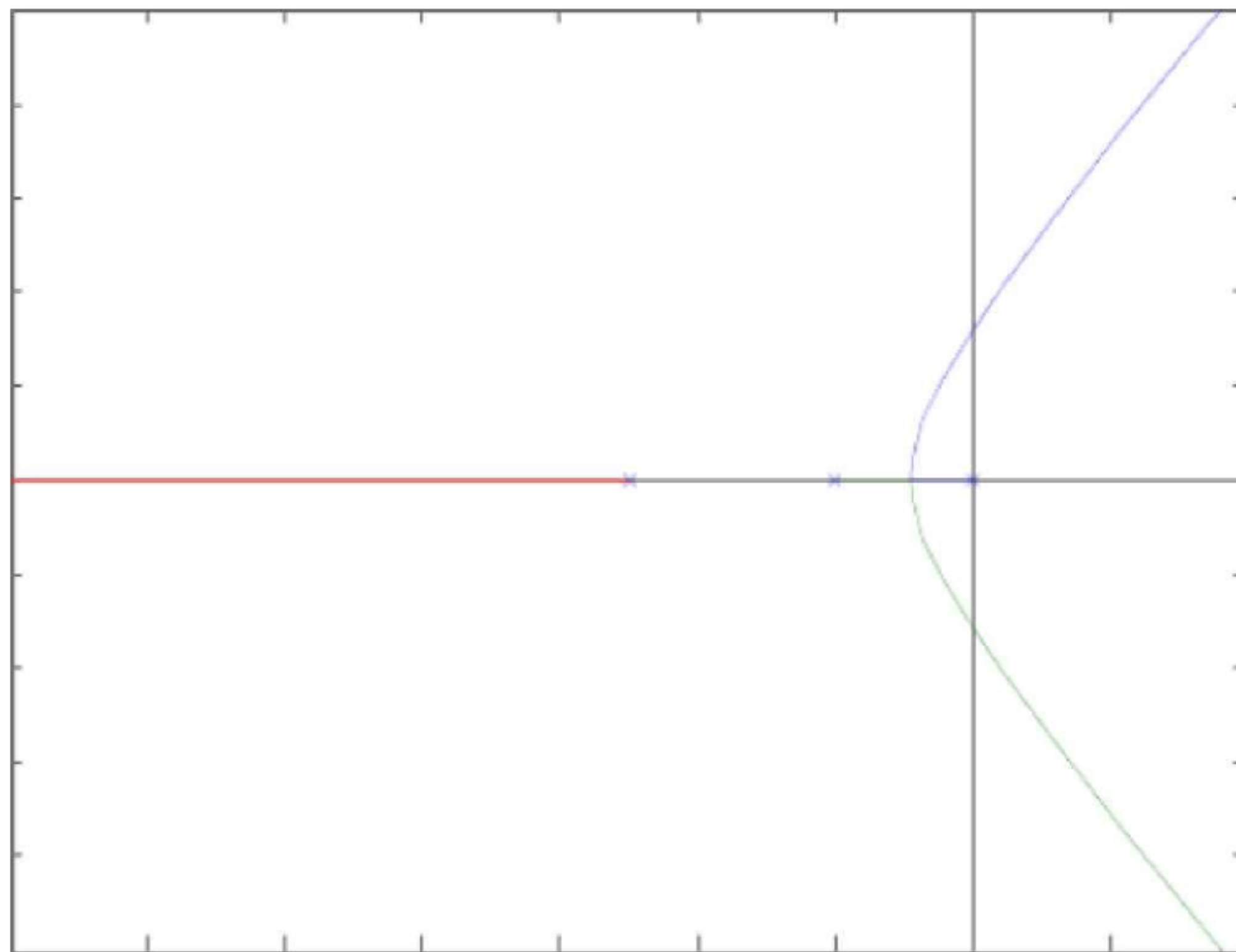
$$T_s = \frac{4}{\zeta \omega_n} = 100 e^{-1} \%$$

v - arccos

10
8
6
4
2
0
-2
-4
-6
-8
-10

-14 -12 -10 -8 -6 -4 -2 0 2 4
Real Axis

Root Locus



$$G(s) = \frac{K}{s(s+2)(s+5)}$$

$$\frac{dG}{ds} = 0 \quad 3s^2 + 7s + 10 = 0$$

$$s_{1,2} = \frac{-7 \pm \sqrt{49 - 120}}{6} = -0.88, -3.78$$

	K		
	$s(s+2)(s+5)$	$= 1$	$K = 4.06$

$$P(s) = 1 \cdot G(s) \cdot s(s-2)(s-5) = 0 \Rightarrow s^3 + 7s^2 + 10s + K = 0$$

$$s = j \quad j^3 + 7j^2 + 10j + K = 0$$

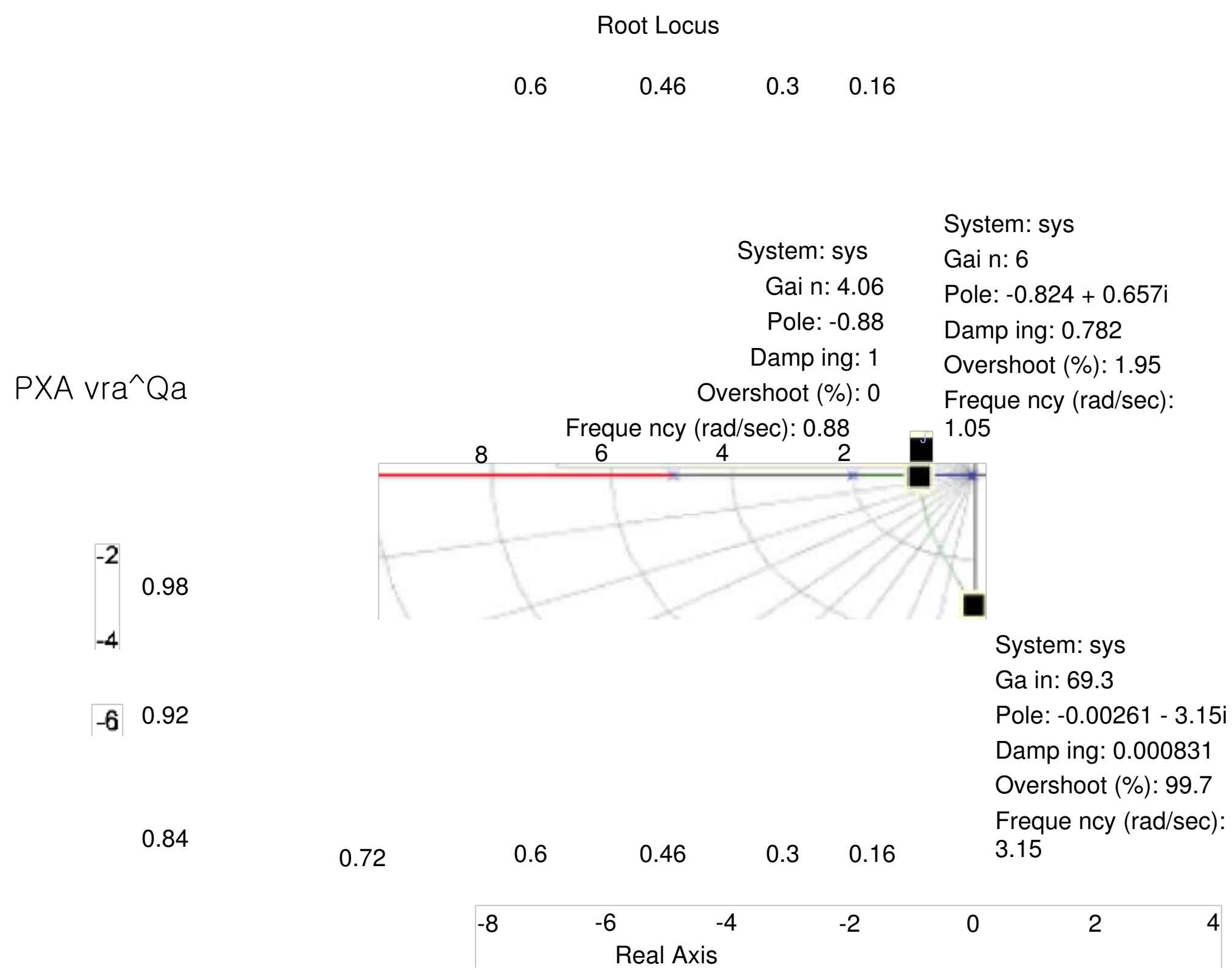
$$-j + 7(-1) + 10j + K = 0 \Rightarrow 9j + K - 7 = 0$$

$$K = 7 - 9j$$

$$s^3 + 7s^2 + 10s + 6 = 0$$

$$p(s) = s^3 + 7s^2 + 10s + 6$$

$$s^3 + 7s^2 + 10s + 6 = (s + 5.34)(s^2 + 1.66s + 1.12)$$



3.4

$$G(j, \omega) = G(s) |_{s=j\omega}$$

$$G(j\omega) = G(s) |_{s=j\omega}$$

$$\phi(\omega) = \arctan[G(j\omega)]$$

$$G(s) = G(j\omega) \quad K$$

$$G(s) = G(j\omega)$$

$$G(s) = \frac{1}{Ts+1} \quad G(j\omega) = \frac{1}{j\omega T+1}$$

以上内容仅为本文档的试下载部分，为可阅读页数的一半内容。如要下载或阅读全文，请访问：<https://d.book118.com/058116066036006053>