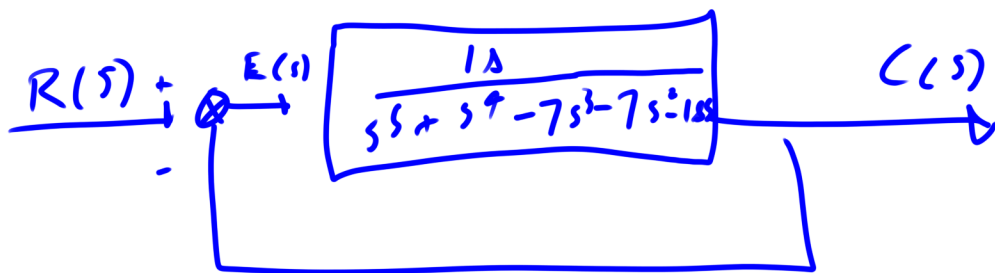


Nise 6.15



$$H(s) = \frac{G(s)}{1 + G(s)} = \frac{\frac{1s}{s^5 + s^4 - 7s^3 - 7s^2 - 18s}}{1 + \frac{1s}{s^5 + s^4 - 7s^3 - 7s^2 - 18s}}$$

$$= \frac{1s}{s^5 + s^4 - 7s^3 - 7s^2 - 18s + 1s}$$

s^5	1	-7	-18		
s^4	1	-7	18		$-\frac{1}{1} \left \begin{array}{cc} 1 & -7 \\ 1 & -7 \end{array} \right = 0$
s^3	ϵ	$-36-1$	0		$= -\frac{1}{1} \left \begin{array}{cc} 1 & -18 \\ 1 & 18 \end{array} \right $
s^2	$\frac{1}{\epsilon} - 7$	18	0		$= -(18 + 18) = -36$
s^1	$\frac{-18\epsilon^2}{1-7\epsilon}$	-1	0		
s^0	-18	0			$-\frac{1}{\epsilon} \left \begin{array}{cc} 1 & -7 \\ \epsilon & -1 \end{array} \right $

$$\frac{-1}{\frac{1}{\epsilon} - 7} \left| \begin{array}{cc} \epsilon & -1 \\ \frac{1}{\epsilon} - 7 & 18 \end{array} \right|$$

$$= \frac{-1}{\frac{1}{\epsilon} - 7} (18\epsilon + \frac{1}{\epsilon} - 7)$$

$$= - \left(\frac{18\epsilon}{\frac{1}{\epsilon} - 7} + 1 \right) = - \left(\frac{18\epsilon^2}{1-7\epsilon} + 1 \right)$$

$$= \frac{-1}{\epsilon} (-1 + 7\epsilon)$$

$$= \frac{1}{\epsilon} - 7$$

$$-\frac{1}{\epsilon} \left| \begin{array}{cc} 1 & 18 \\ \epsilon & 0 \end{array} \right|$$

$$= \frac{-1}{\epsilon} (-18\epsilon) = 18$$

$$\frac{-1}{\frac{-18\epsilon^2}{1-7\epsilon} - 1} \left| \begin{array}{cc} \frac{1}{\epsilon} - 7 & 18 \\ \frac{-18\epsilon^2}{1-7\epsilon} - 1 & 0 \end{array} \right| = \frac{-1}{\frac{-18\epsilon^2}{1-7\epsilon} - 1} 18 \left(\frac{-18\epsilon^2}{1-7\epsilon} - 1 \right)$$

$$= -18$$

	$\epsilon +$	$\epsilon -$
1	+	+
1	+	+
ϵ	+	-
$\frac{1}{\epsilon} - 7$	+	-
$\frac{18\epsilon^2}{1-7\epsilon} - 1$	-	-
-18	-	-

1 rhp
7 lhp