

1 a) N° of roots with positive real parts.

$$P(s) = s^2 + 4s + 1$$

All coefficients are positive

• Apply the Routh-Hurwitz criterion:

z	a_n	a_{n-2}
1	a_{n-1}	a_{n-3}
0	b_{n-1}	

Note:

$$b_{n-1} = \frac{a_{n-1} \cdot a_{n-2} - a_n \cdot a_{n-3}}{a_{n-1}}$$

$$b_{n-1} = - \frac{\begin{vmatrix} a_n & a_{n-2} \\ a_{n-1} & a_{n-3} \end{vmatrix}}{a_{n-1}}$$

$$b_{n-1} = - \frac{(1 \cdot 0 - 4 \cdot 1)}{4} = 1$$

sign changes \rightarrow ZERO

the N° of Roots with positive Real parts is zero.

2	1	1	
1	4	0	
0			