

EE475 Quiz06

Name: Solution.

- Base on the Routh criterion, a second order polynomial as^2+bs+c is asymptotically stable if and only all coeff same sign, a, b, c same sign.
or, $a > 0$
 $b > 0$
 $c > 0$
- Base on the Routh criterion, a third order polynomial as^3+bs^2+cs+d is asymptotically stable if and only a) all coeff same sign, a, b, c, d same sign
and b) $b \cdot c > a \cdot d$.
- Use the Routh criterion, determine if each of the following polynomial are asymptotically stable:

$$s^2+s+1 \text{ A.S.}$$

$$s^2+2s \text{ not}$$

$$s^3+2s^2+3s+4 \text{ A.S.}$$

$$s^3+2s^2+3s+6 \text{ Not}$$

$$s^3+2s^2+2s+8 \text{ not}$$

$$s^5+2s^2+3s+4 \text{ not}$$

$$s^3-2s^2+3s+4 \text{ not}$$