

# EE302 Cheat-Sheet

Nail Tosun - 2094563 -Section 5  
Electric and Electronic Engineering Department, METU

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## Routh-Hurwitz Criteria

### Necessary but NOT sufficient condition for stability

All coefficients must be same sign or no zeros should exist in characteristic equation.

$$q(s) = s^3 - 3s + 2$$

It is directly unstable But if we want to find number of poles at the RHP put  $\epsilon$ .

### Zero columns cases

If there is zero occur in the routh array we can say immediately this system is unstable. But computing how many roots at the right half plane is following;

### Zero row cases

Root locations that causes the this situation;

### Symmetry at $j\omega$ axis real roots

At  $j\omega$  axis

Quadrant both symmetric at real and imaginary axis