

1-01-f - Tutorial – Ruth Hurwitz Stability Criterion

ROUTH STABILITY CRITERION

5.9. Determine if the following characteristic equation represents a stable system:

$$s^3 + 4s^2 + 8s + 12 = 0$$

5.10. Determine if the following characteristic equation has any roots with positive real parts:

$$s^4 + s^3 - s - 1 = 0$$

5.11. The characteristic equation of a given system is

$$s^4 + 6s^3 + 11s^2 + 6s + K = 0$$

What restrictions must be placed upon the parameter K in order to insure that the system is stable?

5.12. Construct a Routh table and determine the number of roots with positive real parts for the equation

$$2s^3 + 4s^2 + 4s + 12 = 0$$