

Stability:

1. Determine the stability of the following systems

a) $H(s) = \frac{s+2}{(s+3)(s-2)}$

b) $H(s) = \frac{s+2}{(s+3)(s+2)}$

c) $H(s) = \frac{s^2+2}{(s+3)((s-2)^2+9)}$

d) $H(s) = \frac{s-1}{s^4+3s^3+s^2+2s+4}$

e) $H(s) = \frac{8s^2+2s-4}{s^5+2s^4-2s^3+3s^2+2s}$

2. Find the range of K for stability:

a) $H(s) = \frac{10s+2}{s^3+3s^2+4s+K}$

b) $H(s) = \frac{10}{s^2+(K+2)s+4}$

c) $H(s) = \frac{K(s-1)}{s^2+(K+2)s+2-K}$