

need stable system

$$s^3: 1 \quad 2+k_p$$

$$s^2: 2 \quad k_f$$

$$s: \frac{4+k_p 2 - k_f}{2} \Rightarrow$$

$$s^0: k_f$$

$$2 + k_p - \frac{k_f}{2} > 0$$

$$\underline{k_p > \frac{k_f}{2} - 2}$$

$$\text{any } k_p > \frac{k_f}{2} - 2$$