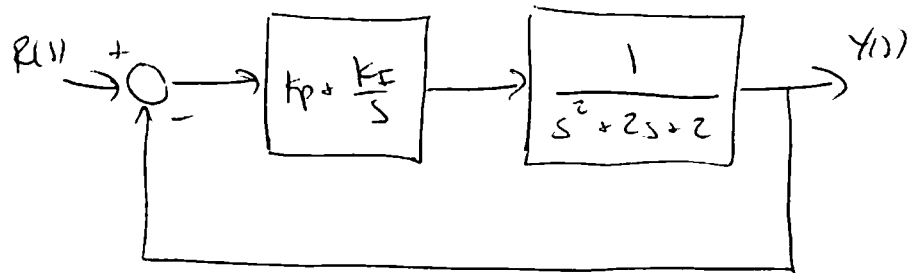


for finite sse with ramp reference, need type 1 system

Choose PI control



$$K_v = \lim_{s \rightarrow 0} s \frac{K_p s + K_I}{s} \cdot \frac{1}{s^2 + 2s + 2} = \frac{K_I}{2}$$

$$e_{ss} = \frac{1}{K_v} = \frac{2}{K_I} = 0.2$$

choose $K_I \geq 10$

Closed loop: $\frac{Y(s)}{R(s)} = \frac{K_p s + K_I}{s^3 + 2s^2 + (2 + K_p)s + K_I}$