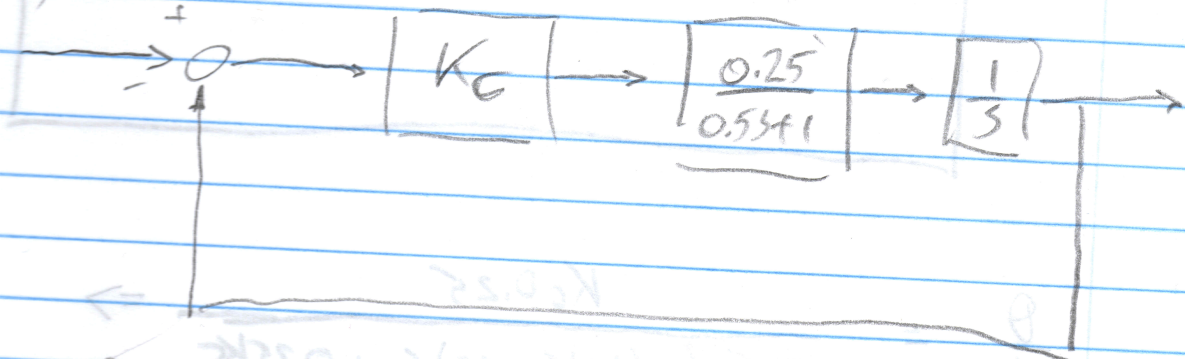


Übung 5

a)



$$\frac{\Theta}{V_{ref}} = \frac{K_c \cdot 0.25}{(0.5s + 1)s + K_c \cdot 0.25}$$

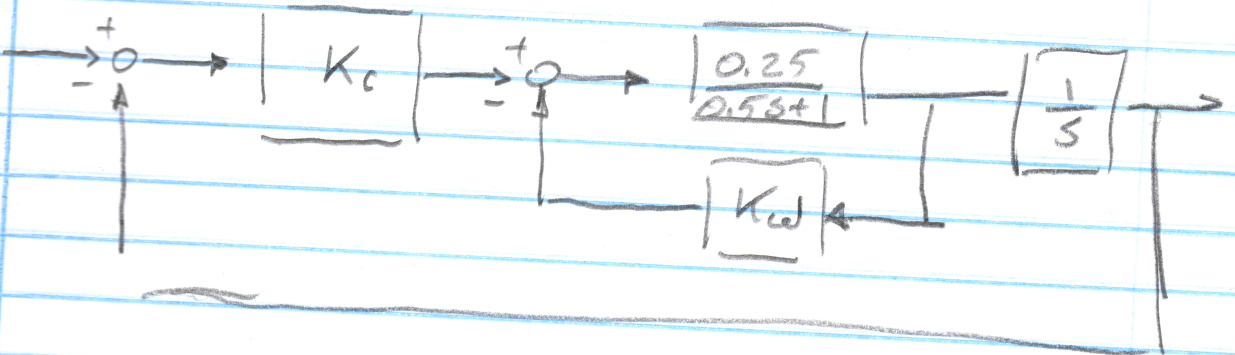
$$= \frac{(K_c \cdot 0.25) \cdot 2}{s^2 + 2s + (K_c \cdot 0.25) \cdot 2}$$

$$= \frac{0.5 K_c}{s^2 + 2s + 0.5 K_c}$$

$$2 \zeta \omega_n = 2 \Rightarrow \omega_n = 1 \Rightarrow T = \frac{1}{\omega_n} = 1s$$

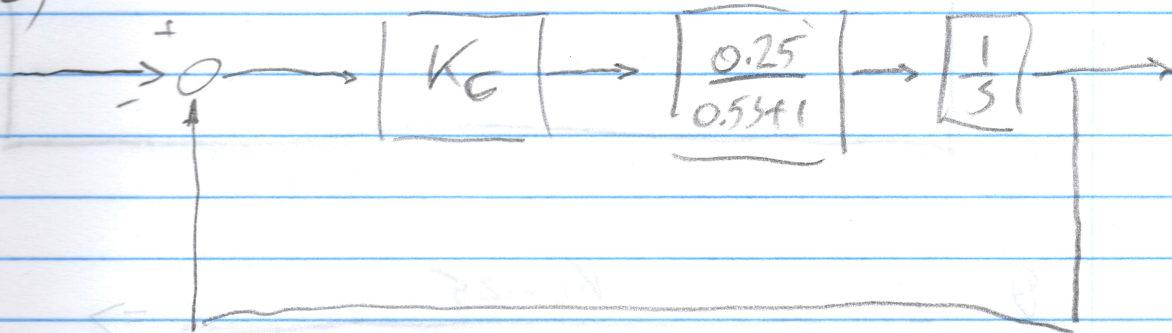
$$K_c \cdot 0.5 = \omega_n^2 \quad K_c = 2$$

b)



Übung 5

a)



$$\frac{\theta}{V_{ref}} = \frac{K_C \cdot 0.25}{(0.5s + 1)s + K_C \cdot 0.25}$$

$$= \frac{(K_C \cdot 0.25) \cdot 3}{s^2 + 2s + (K_C \cdot 0.25) \cdot 3}$$

$$\omega_{01} = \frac{0.5 K_C}{s^2 + 2s + 0.5 K_C}$$

$$2 \zeta \omega_n = 2 \Rightarrow \omega_n = 1 \Rightarrow T = \frac{1}{\omega_n} = 1s$$

$$K_C \cdot 0.5 \omega_n^2 = \omega_n^2 \quad K_C = 2 //$$

b)

