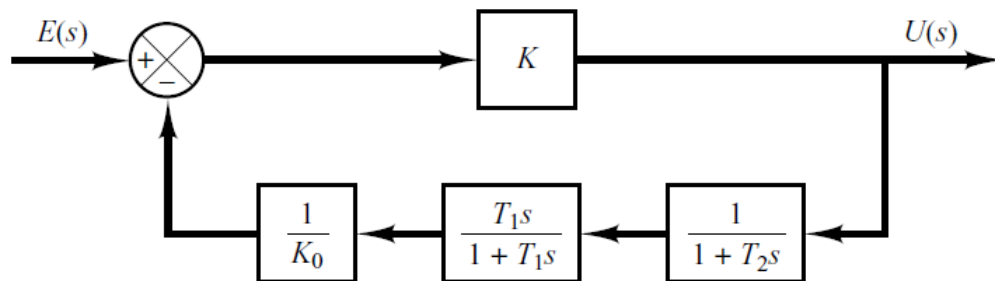


Name:

---

This figure shows the block diagram representation of a compensator  $U(s)/E(s)$ .



Prove that this block diagram can be reduced into a PID controller with the three gains for the proportional, derivative, and integrator components. Derive these constants, i.e., derive  $K_p, T_i, T_d$  in terms of  $K_0, T_1, T_2, K$ , by obtaining the CLTF for the above system. Your answer should look like:

$$G_{PID}(s) = K_p \left( 1 + \frac{1}{T_i s} + T_d s \right).$$