1. The open-loop transfer function of a unity-feedback system is

$$G(s)=\frac{K}{s(\frac{1}{3}s+1)(\frac{1}{6}s+1)}$$

If it is required that all the real parts of the closed-loop poles be less than -1 and -2, respectively, how to determine the values of K?

2. The open-loop transfer functions of unity feedback systems are as follows:

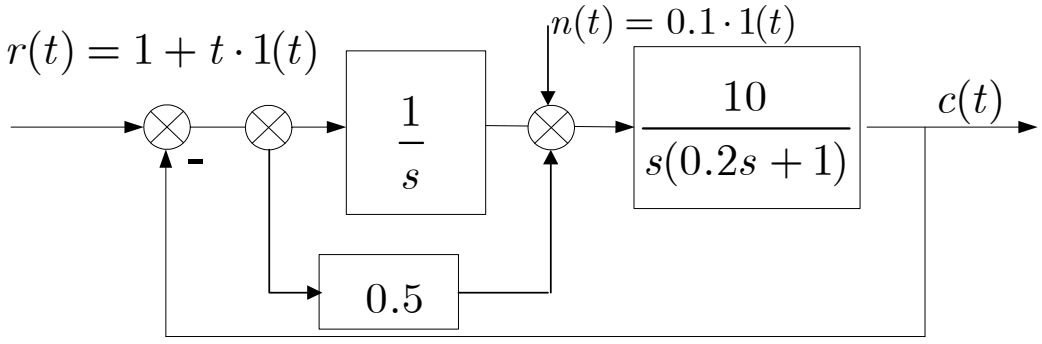
1) $G(s)=\dfrac{10}{(0.1s+1)(0.5s+1)}$

2) $G(s)=\dfrac{7(s+1)}{s(s+4)(s^2+2s+2)}$

3) $G(s)=\dfrac{8(0.5s+1)}{s^2(0.1s+1)}$

Determine their steady-state errors when input signals are $r(t)=1(t)$, $r(t)=t\cdot 1(t)$ and $r(t)=\dfrac{t^2}{2}\cdot 1(t)$, respectively.

3. Determine the steady-state error for the following system:



4. B-5-26