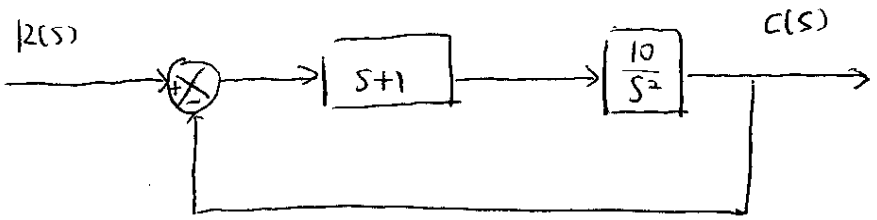
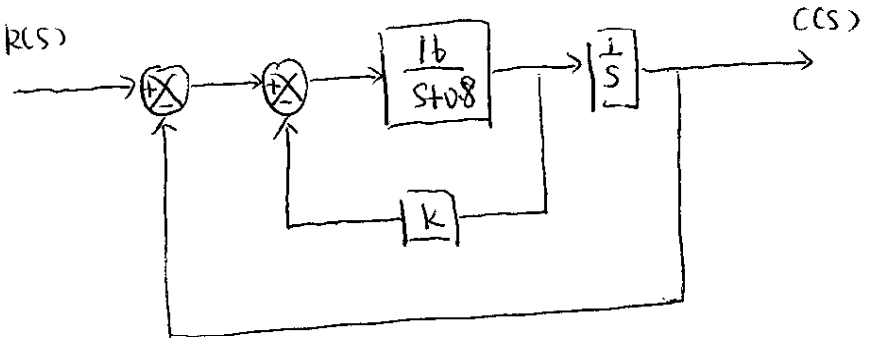
1. Given the system



a. Determine the transfer function $C(s)/R(s)$

b. Evaluate the time response $c(t)$ if $r(t)$ is a unit step.

2. Given the system



Determine the value of k such that the damping ratio ζ is 0.5. Then obtain the rise time t_r, peak time t_p, maximum overshoot M_p and setting time t_s in the unit-step response.