Portland State University

Electrical & Computer Engineering

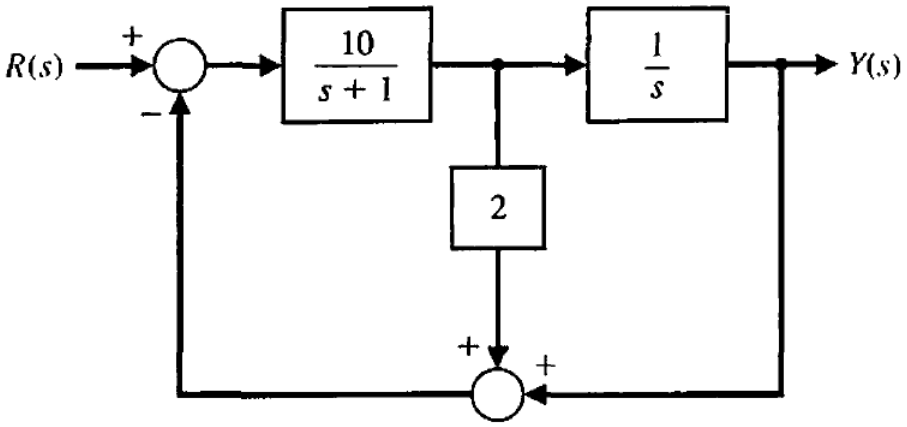
ECE 311 Feedback & Control

-Homework #1-

Text Problems: **B-2-1,B-2-2, B-2-4, B-2-7**

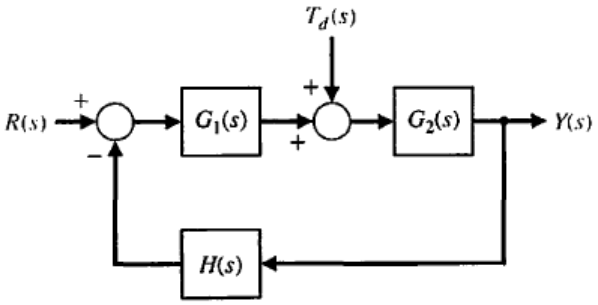
Problem 1:

Determine Y(s) / R(s):



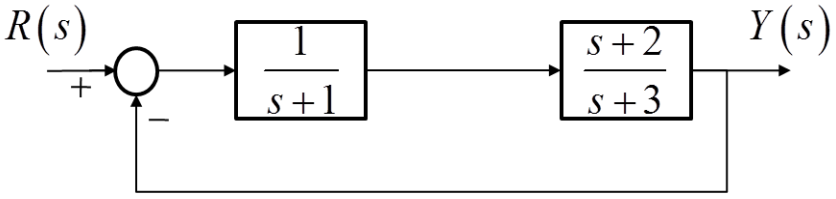
Problem 2:

Determine $Y(s)/T_d(s)$:



Problem 3:

Consider system:



In MATLAB:
(a) Compute the closed-loop transfer function using 'series' and 'feedback' functions
(b) Obtain the closed-loop system unit step response and verify the final value is 2/5

Fundamentals of Engineering Exam Problem 1:

Which of the following is the general solution for the differential equation shown below?

$$y''+7y'+10y=0$$

(A) Ce^{-5t}
(B) $(C_1+C_2)e^{-7t}$
(C) $C_1e^{-7t} + C_2e^{-10t}$
(D) $C_1e^{-2t} + C_2e^{-5t}$

Fundamentals of Engineering Exam Problem 2`

Which of the following is the general solution for the differential equation and boundary condition shown below?

$$\frac{dy}{dt}+5y=0; \quad y(0)=10$$

(A) $5e^{10t}$
(B) $5e^{-10t}$
(C) $10e^{5t}$
(D) $10e^{-5t}$