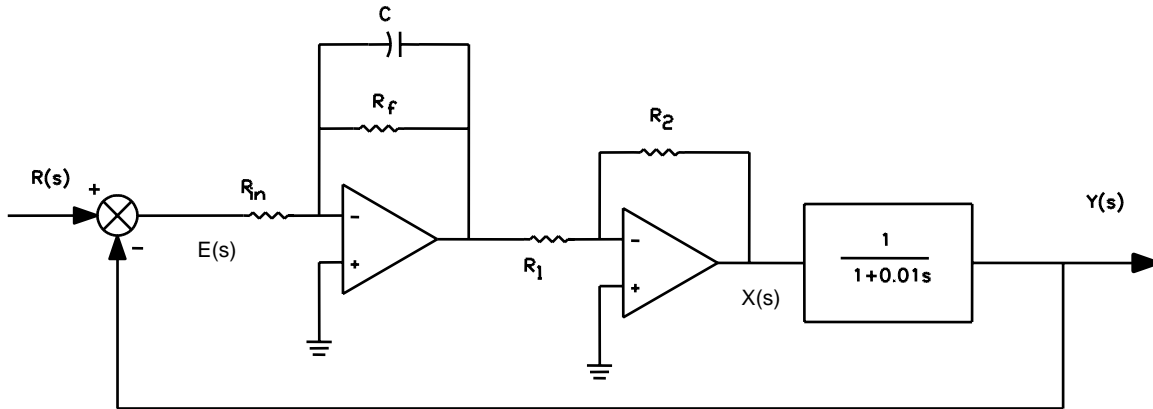ET438a
Practical Integrator and differentiator Circuits
Homework
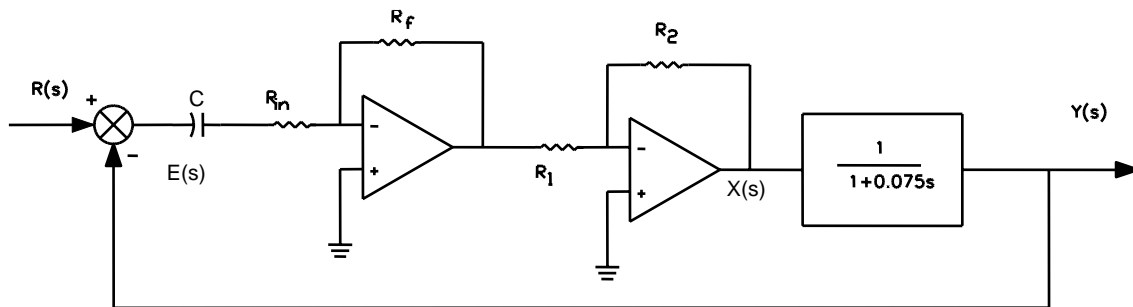
1. Practical integrator circuits in control
a)   Find the transfer function, X(s)/E(s), of the practical integrator circuit in the
        control system diagram below.
b.)   Find the closed loop transfer function of the system Y(s)/R(s).
        R_{in} = 10kΩ R_f = 50 kΩ C = 1uF R_1= 100kΩ R_2 = 100kΩ

2. Practical differentiator circuits in control
a.)   Find the transfer function, X(s)/E(s) of the practical differentiator circuit including
        the inverting amplifier.
b.)   Find the closed loop transfer function of the the system Y(s)/R(s).

R_f = 10kΩ R_{in} = 12kΩ C = 2.5 uF R_1 = 100kΩ R_2 = 220kΩ