

# ECE-205 : Dynamical Systems

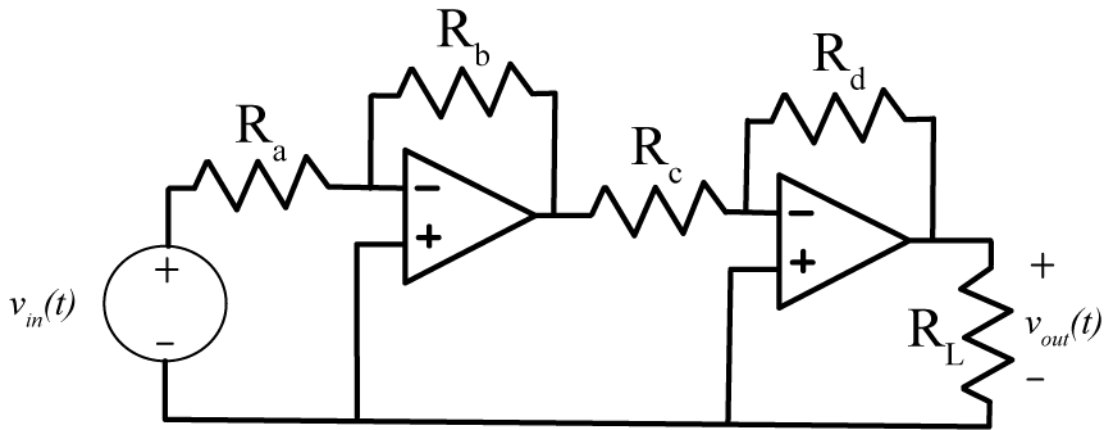
## Homework #1

**Due :** Monday March 11 at 5 PM

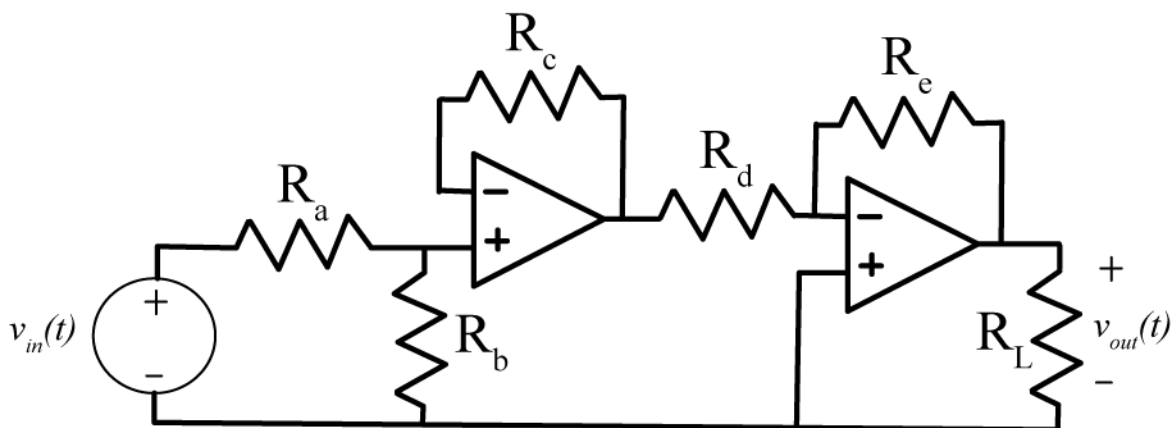
Use the ideal op-amp assumption for all of the following problems (and all problems in this course, unless you are explicitly told otherwise).

- 1) Chapter 2 Problem 2.1
- 2) Chapter 2 Problem 2.2
- 3) Chapter 2 Problem 2.3
- 4) Chapter 2 Problem 2.5
- 5) Chapter 2 Problem 2.6

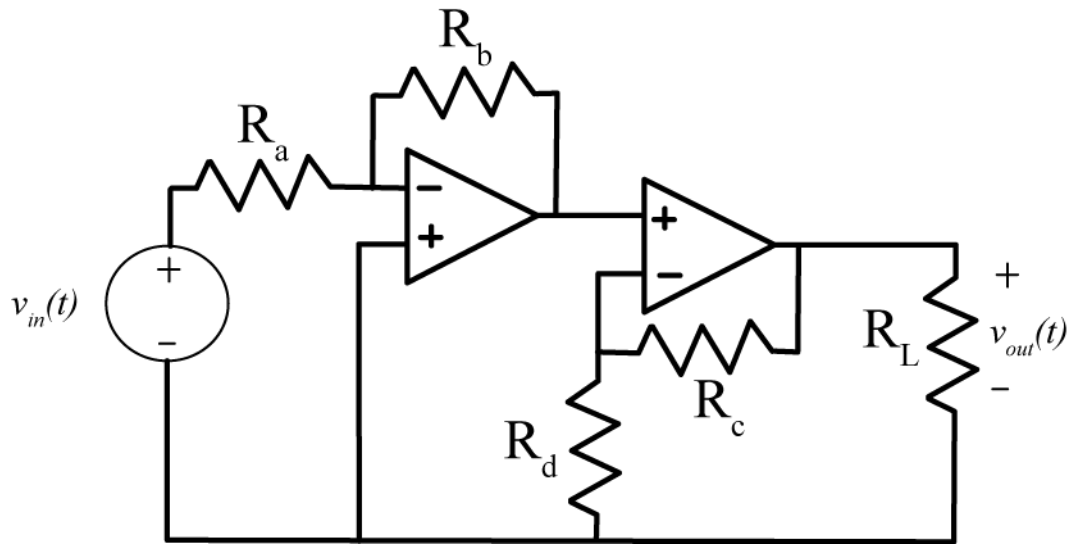
6) For the following circuit, show that  $v_{out}(t) = \left( \frac{R_b R_d}{R_a R_c} \right) v_{in}(t)$



7) For the following circuit, show that  $v_{out}(t) = \left( -\frac{R_e R_b}{R_d R_a + R_b} \right) v_{in}(t)$



8) For the following circuit, show that  $v_{out}(t) = \left( -\frac{R_b}{R_a} \frac{R_c + R_d}{R_d} \right) v_{in}(t)$



*Note that the polarity of the two op-amps are different!*