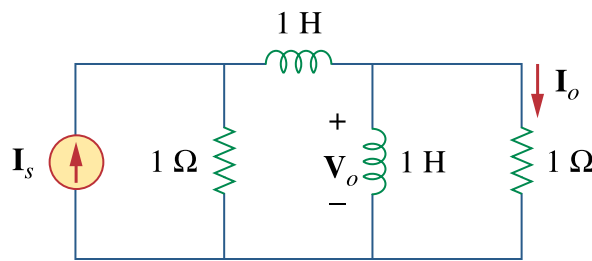# ECE 302 - Linear System Analysis

Homework #4

Due Date: September 24, 2025

1. Lathi & Green problem 2.2-6

2. Lathi & Green problem 2.2-8

3. Compute the impulse response, $h(t)$, for the system in the previous problem *without* using the Laplace transform.

4. Consider the circuit shown below.

   (a) Determine the input-output equation for this system, where the input is $x = I_s$, and the output is $y = I_o$.

   (b) Compute the impulse response of the circuit, $h(t)$, *without* using the Laplace transform.

5. **Complex Arithmetic:** Let $z_1 = 2 - j$ and $z_2 = 1 + j$. Compute the following:

   (a) $z_1 + z_2$
   (b) $z_1 z_2$
   (c) z_1/z_2

   Put all your final answers in rectangular form.