February 1, 2024

ECEN 325

Homework #2

Due: February 13, 2024, 11:59PM
Homeworks will not be received after due.
Instructor: Sam Palermo

Solve the following problems from the Razavi text:
8.3, 8.7, 8.11, 8.12, 8.13*, 8.31, 8.33, 8.34*

*Problems 8.13 & 8.34 have a typo, in that it tells you to refer to the opamp model of Fig. 8.45. Instead, you should refer to the opamp model of Fig. 8.46.

Additional Problem:

1. Assume that you have 2 inputs V_1 and V_2. Using a single opamp, design a circuit that implements the following expression.

$$V_o = -4V_1 + 3V_2$$

For the resistors in the circuit, use a minimum value of 1kΩ. Simulate the circuit in Multisim using the ua741 model with ±5V power supplies. In order to verify that the circuit works, set V_2=1V and sweep V_1 from -0.5V to 0.5V. Verify that the circuit has the correct output values and slope.