HOMEWORK 4
ECE 580
Due November 8, 2023

The circuit shown on top is a two-bit digital-to-analog converter. $V_{ref} = 3$ V, and R = 1 kΩ. The opamp is assumed to be ideal. The effects of resistance errors in the ladder need to be found, using the adjoint network shown at the bottom.

1. Analyze both circuits.
2. Find the sensitivities to errors in the ladder resistors.

Hint: use the MNA to find the currents in the adjoint network.