

**Homework 2**  
**EE 220 Circuits I Fall 2019**  
**Monday, September 9, 2019**

- 1) An one inch thick silicon wafer has a circular cross-section with a diameter of 6 in. Given that the conductivity of the silicon in this wafer is  $\sigma_{\text{Si}} = 3 \text{ mS/m}$ , find the resistance between the flat sides of the wafer. Determine the required voltage to make 2 A of current flow between the flat sides of the wafer as well as the power dissipated.
- 2) PP2.12
- 3) 2.9
- 4) 2.14
- 5) 2.29 Also, find the equivalent conductance  $G_{eq}$ .
- 6) 2.34 Also, find the equivalent conductance  $G_{eq}$  seen by the voltage source as well as the current through and voltage across the  $200 \Omega$  resistor.
- 7) Find the number of branches  $b$ , nodes  $n$ , and independent loops  $l$  in the circuit of problem 2.34.
- 8) 2.55 Also, find the equivalent resistance  $R_{eq}$  and conductance  $G_{eq}$  seen by the voltage source.

**Due Friday, September 13, 2019.**