CPE 310 Homework #1: Basic Electronic Circuits

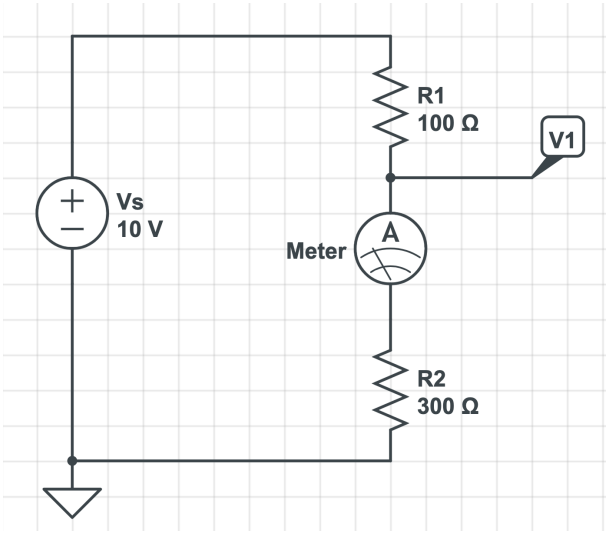
The purpose of this homework is to provide you with practice in simple circuit analysis. *You must show all your work in order to receive full credit.*

Name: _____

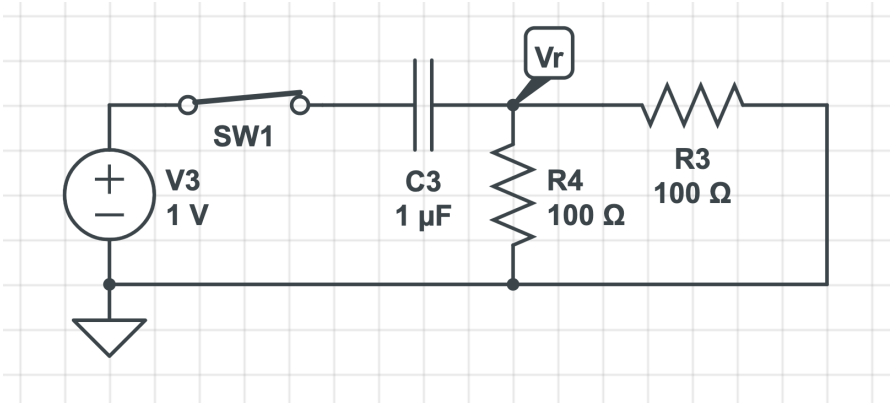
I. Series circuit

A. Determine the total current through meter A in the circuit shown below.

B. Determine the voltage at point V1.



II. What is the voltage at point Vr after the switch has been closed for a very long time?



III. Complex resistive circuit

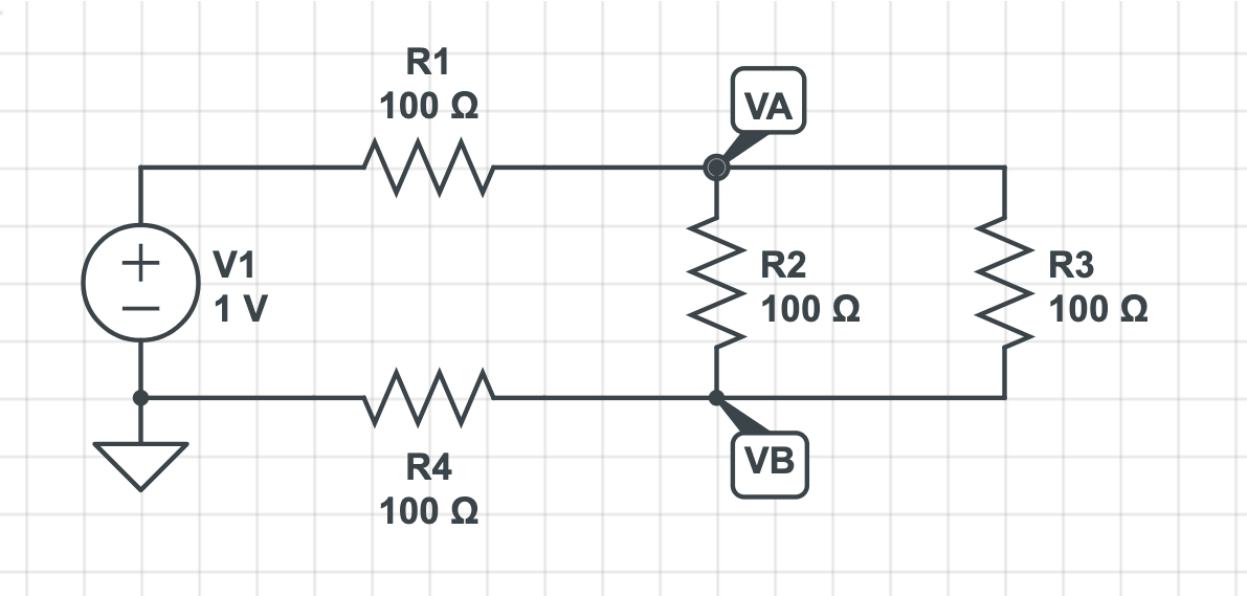
A. What is the total resistance in the circuit? _____

B. What is the total current in the circuit? _____

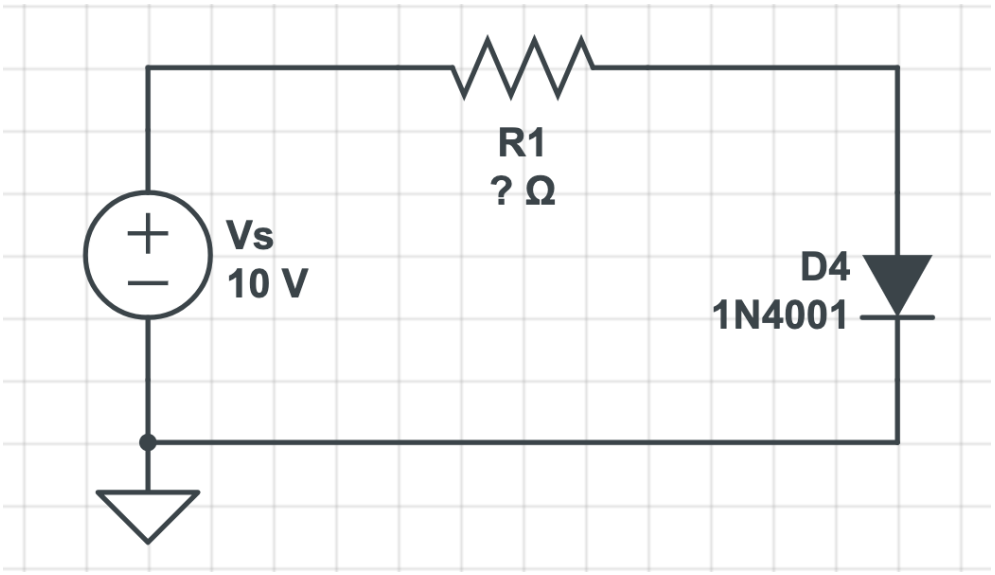
C. Write the Kirchhoff equation for the circuit _____

D. What is the voltage at point VA? _____

E. What is the voltage at point VB? _____



IV. Assume that the diode in the circuit below has a forward bias voltage of 0.7 volts. Calculate the value of resistor needed to cause the current in the circuit *I* to be 100 mA.



10 Point Bonus

Calculate Vr and Vout for the following circuit. Assume the forward bias voltage on D1 is 700 mV as labelled in the diagram.