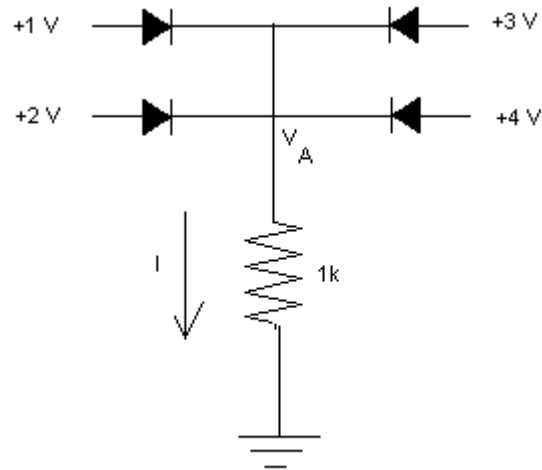Name : _____

TA: _____

Section: _____

# Diodes: Prelab

0.  **READ THE LAB GUIDE**.

1.  In the circuit below find $V_A$ and I, assuming all diodes are ideal (threshold voltage is zero).



**HINT:  Each diode can be on or off.  Since you are using the ideal diode model, the diode can be modeled as a short circuit if it is on and open circuit if it is off.  However, there are 4 diodes and thus there are 16 possibilities. Obviously, only one of the 16 is correct.  You could try all 16, but think:  what values can $V_A$ take?  Obviously, it cannot be greater than the largest voltage in the circuit and it cannot be smaller than the least value.  Can you use this fact to guess which diode is on and which is off?**

**2.  EXTRA CREDIT (4 points)**

Using the non-ideal exponential diode equation from the lab guide, solve for $V_A$ and I in the circuit above.  Compare with the values from question 1.