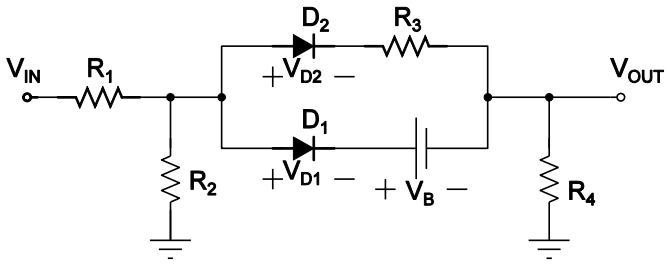
Q1: Plot the characteristic input/output curve for the circuit shown to the right for $-10V < V_{in} < +10V$. Clearly label all break-points and slopes on your graph.

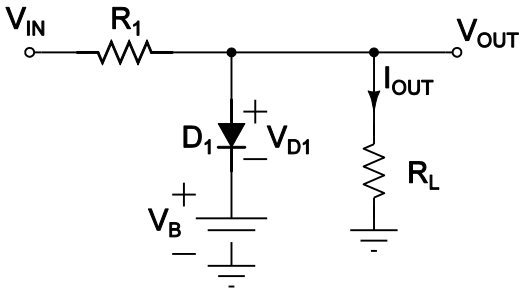
Assume the diodes are ideal, $R_1 = R_2 = R_3 = R_4 = 1k\Omega$, and $V_B = +1V$.



Q2: Consider the circuit shown to the right where $R_1 = 200\Omega$, $R_L = 400\Omega$, and $V_B = +1V$.

Calculate V_{OUT} and I_{OUT} for $V_{IN} = -5V, +2V, +10V$ for the following cases.

a) Assume an ideal diode model for D_1.
b) Assume a constant voltage drop model for D_1 with $V_{D,on} = 0.7V$.
c) Assume a physical model with $I_S = 1nA$ and $n = 2$ (use $V_T = 25mV$).



Q3: Plot the voltage at the output of the circuit shown to the right when voltage V_{in} as shown below is applied to the circuit. Label all important voltage levels.

Assume $R_1 = 300\Omega$, $V_B = +7V$, and a physical model for the diode with $I_S = 1nA$ and $n = 2$ (use $V_T = 25mV$).

Hint: Solve the circuit at DC first, then use the small signal model for the AC component.