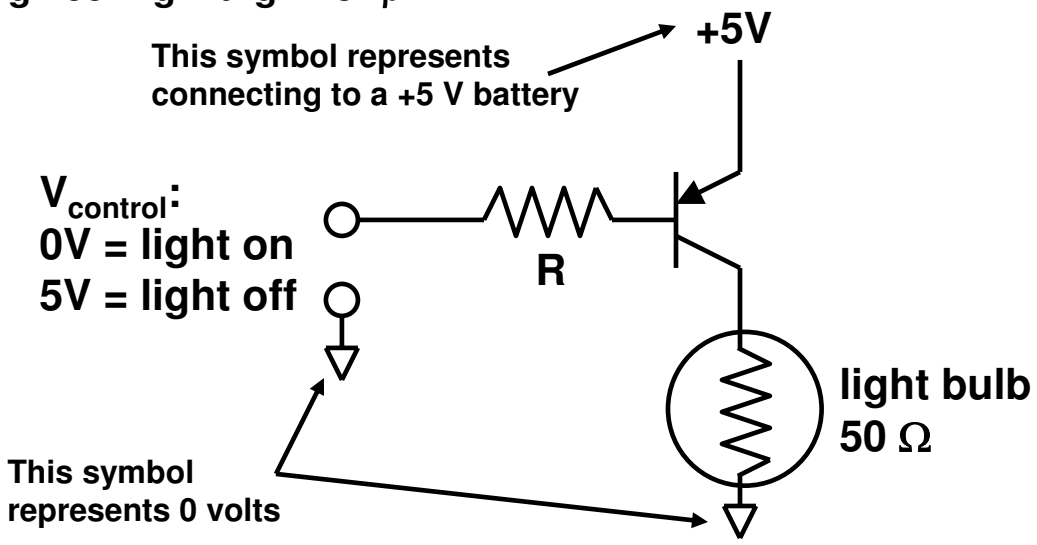
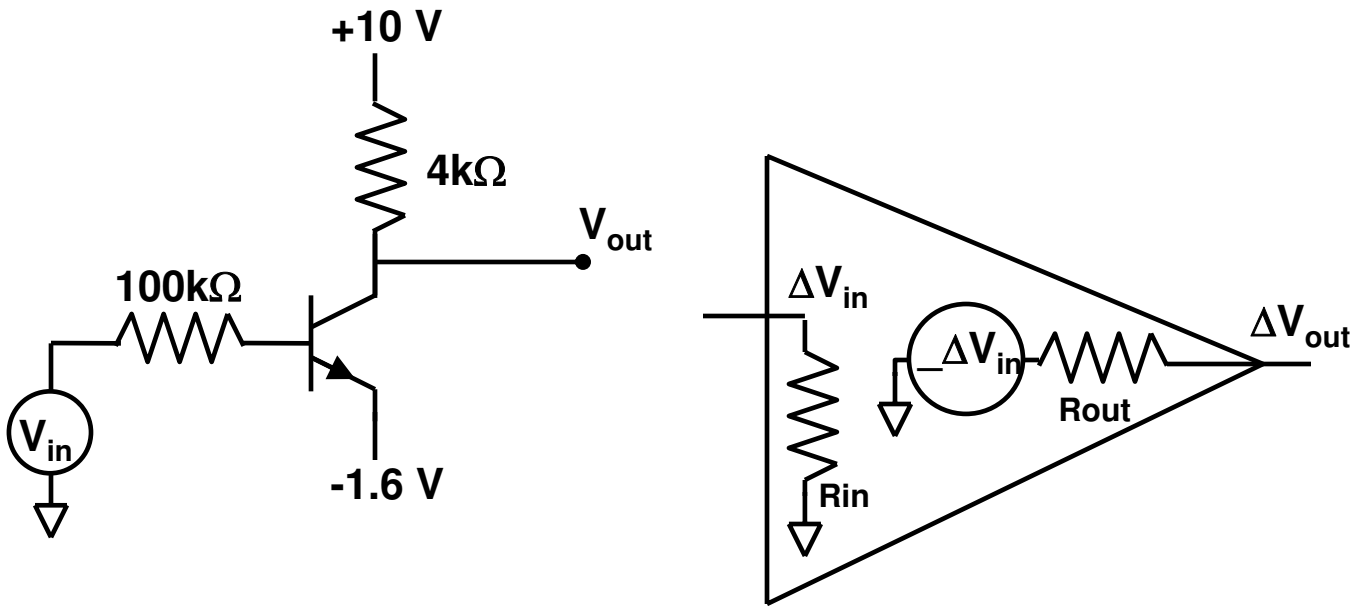
Name: _____ Perm #: _____ TA: _____

HW5, PHYSICS 127A

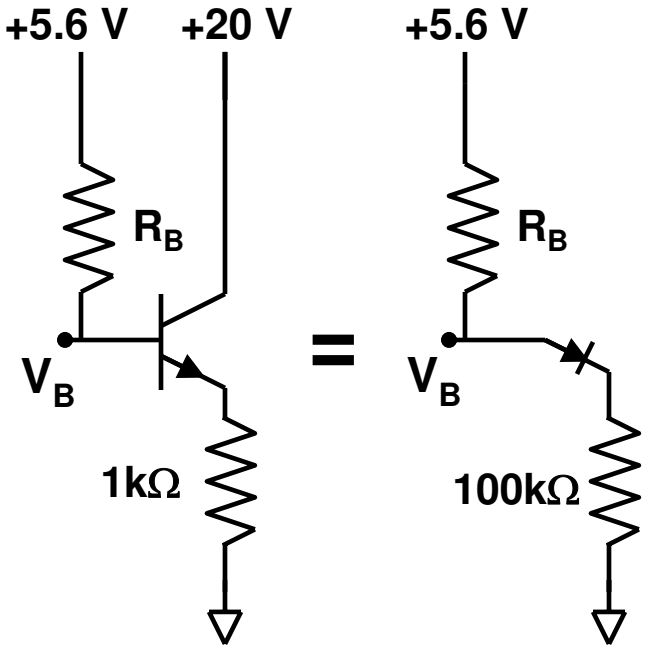
1. The following circuit is a lightbulb driver using a PNP transistor. Calculate R needed to drive the light bulb assuming $\beta = 100$. Don't forget the engineering margin for β.



2. (a) For the following circuit, plot as a function of Vin (from -2 to +3 volts) the base current, collector current, and Vout. (b) Compute the <u>small-signal</u> gain, input resistance, and output resistance for the equivalent amplifier model.



3. (a) Assuming a transistor β = 100, show that the following two circuits are equivalent. (b) Compute the transistor base voltage for the values given in the table.



R_B	V_B
10k	
100k	
1M	

4. H.H. problem 2.2

5. H.H. problem 2.3

6. H.H. problem 2.4