

Name: _____

Student ID #: _____

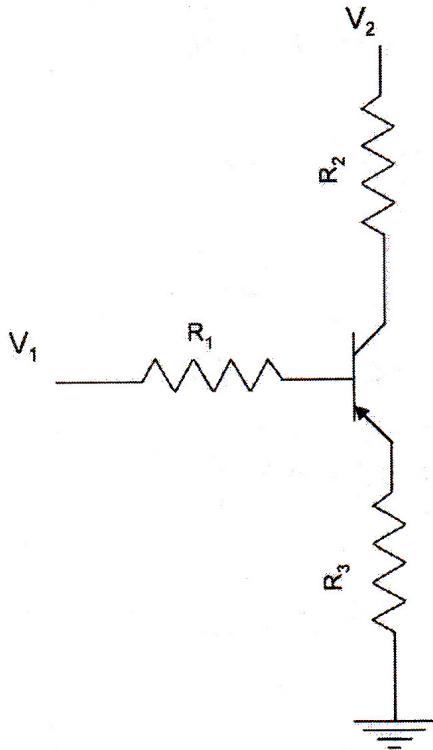
EECS 170A
Homework #6

HW will be collected in discussion section.
Please do not turn your HW in **anywhere else**.
Due: 10:50am Thursday, November 10, 2011.

Please *staple* this sheet to the front of your homework.

1	2	2	2	Total
/25	/25	/20	/30	/100

- 1) For the circuit below, find I_B , I_E , I_C , V_C , V_B , V_{BE} , V_{CE} , V_{BC} defined in figure 10.2 of the text. Hints: the BE voltage drop is about 0.6 V. Take $\beta = 100$. Then $I_C = 100I_B$. The rest is just applications of KCL and KVL. Is the transistor in forward active mode?



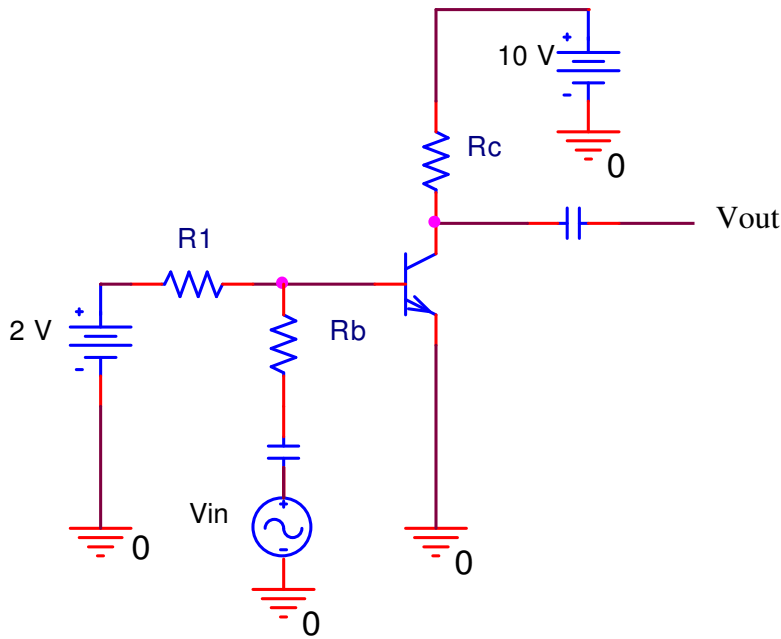
Assuming the transistor is in forward active mode, find the following quantities in terms of R_1 , R_2 , R_3 , V_1 and V_2 .

I_E	
I_B	
I_C	
V_E	
V_B	
V_C	
V_{BE}	
V_{CE}	
V_{BC}	

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2) Find the AC voltage gain of the following circuit given $\beta = 100$. (Hint: Use Hybrid Pi model)



3) For the circuit in problem #2, find the condition under which $\text{Gain} = -\beta \frac{R_C}{R_B}$

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4) For the circuit below, find the AC voltage gain.

Find the condition under which Gain = $-\beta \frac{R_C}{R_B}$

