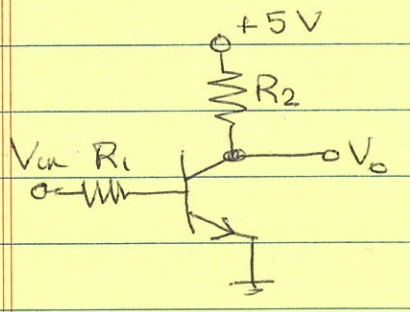
TEXT PROBLEMS: 5.18, 5.38, 5.39

Problem A



The circuit is to function as an Inverter. When $V_{in} = 5V$, the BJT operates at the boundary of FA and SAT. The BJT has $\beta = 200$; use $V_{BE} = 0.7V$ and $V_{CE} = 0.3V$

I) Determine R_1 and R_2. II) What is V_o if $V_{in} = 0.3V$?

Problem B

The circuit shown is a pnp current mirror, i.e, it behaves as a current source. The BJT has $\beta = 50$, $V_{BE} = 0.7V$. 1) Determine I_o 2) If $\beta = 75$, what is the new value of I_o? Assume Q1 and Q2 are identical