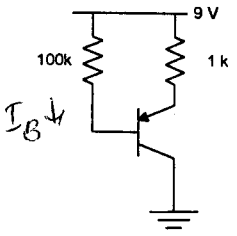
Electronics 1 - Quiz 1 ID Number: _____ Name: _____

Find the operating points for the transistors in the circuits given below. (Assume β=200)

I_C = _____

V_{EC} = _____



Cut-off

$I_C \simeq 0$

$V_{EC} = 9V$

Actually it would be reverse active mode.

$\beta_R \cong \frac{1}{\beta_F} = \frac{1}{200}$

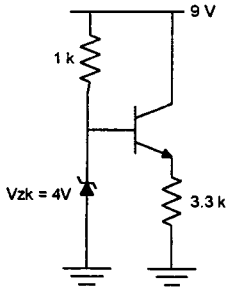
$I_B = \frac{9-0.7}{100}$

$\beta_R I_B = \frac{8.3}{20000}$ mA

$\simeq 0$

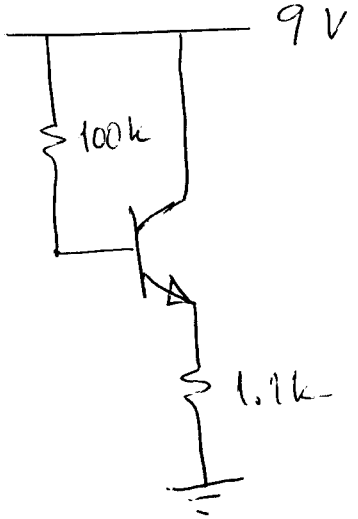
I_C = _____

V_{CE} = _____



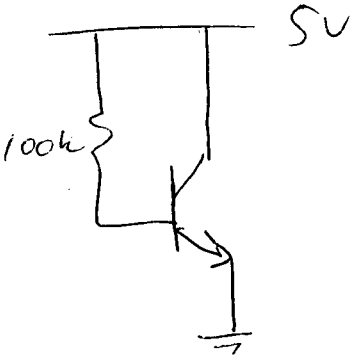
$I_C \cong I_E = \frac{4-0.7}{3.3} = 1mA$

$V_{CE} = 9 - 3.3 \times 1 = 5.7\,V$



$I_C = \frac{200(9-0.7)}{201 \times 1.1 + 100} = 5.16\,mA$

$V_{CE} = 9 - 5.16 \times 1.1 = 3.31V$



$V_{CE} = 5V$

$I_C = 200\,\frac{5-0.7}{100} = 8.6mA$