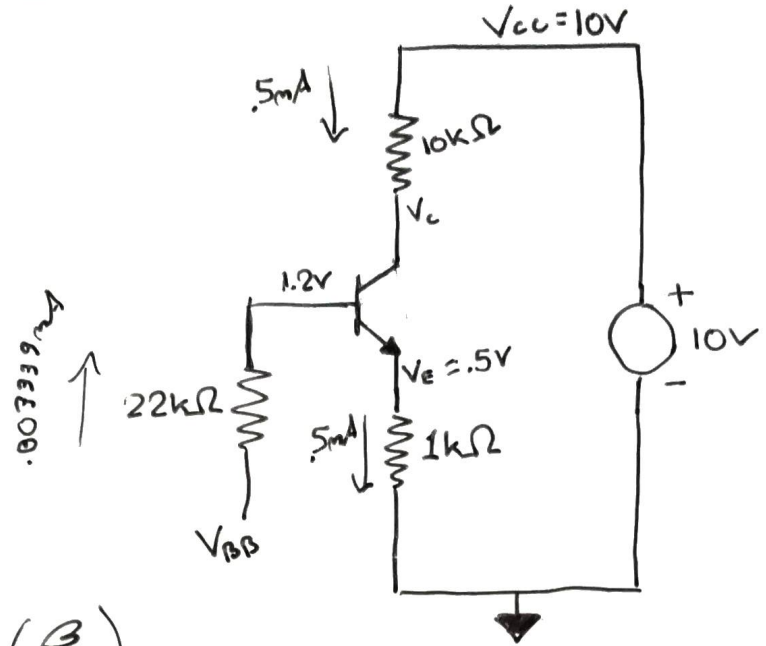
Lab 7 Pre

1)



$i_c = \left(\frac{\beta}{\beta+1}\right) i_e$ $\quad .5mA = \left(\frac{150}{151}\right) i_e$, $i_e = .503333\,mA$

$(.003333mA \cdot 22k\Omega) + 1.2V =$ **$1.273333V = V_{BB}$**

$V_{RBB} = 73.3333\,mV$

2)

$$1.2733 = I_B \cdot 22k + .7V + (I_B \cdot 225)1k$$
$$.5733 = I_B(22k + 225k)$$
$$I_B = 2.32_5 mA$$

$$I_c = 225 I_B = .522mA$$
$$\frac{.522mA}{.5mA} = 1.044 = 4.4\%$$

3) $\left(\frac{-2mV}{°C}\right)(40°C) = 80mV$

$V_{BE} = .7 - 80mV = .62$

$\left(\frac{1.25\%}{°C}\right)(40°C) = 50\%$ increase in β

same as last step...
4.4% increase

4) $\frac{\Delta V_c}{\Delta V_B} =$ **$\frac{V_{cc} - I_c R_c}{I_c R_E + V_{BE}}$**