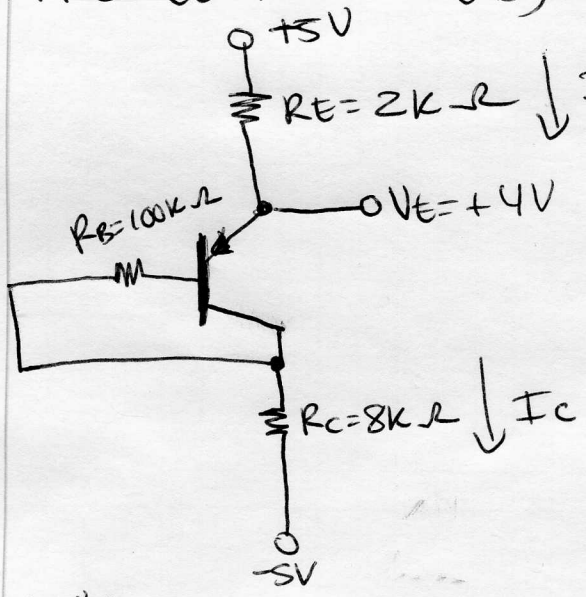
PROBLEM 5.23(b)



- $I_C = I_E - I_B$

eqn to use:

$$4 = I_B(100K) + .7 + (.5m - I_B)8$$

(I_C flows through $8K\Omega$)

which can be written as

$$9 = I_B(100K) + .7 + 4 - I_B(8K)$$

$$9 - 4.7 = I_B(100K) - I_B(8K)$$

solve for I_B

gives

$$\boxed{I_B = 47\mu A}$$

- $V = iR$

$$I_E = \frac{5-4}{2K} = \boxed{.5mA}$$

- Then $I_C = I_E - I_B$

$$= 0.5mA - .47\mu A$$

$$\boxed{I_C = .453mA}$$

Therefore, $\beta = \frac{I_C}{I_B} = \frac{.453mA}{.47\mu A} = 9.69 \simeq \boxed{9.7 = \beta}$

$$\alpha = \frac{9.7}{10.7} = \boxed{0.9065 = \alpha}$$

as you all will see SOLUTION WRITES THE following: $4 = 0.7 + I_B R_B + (I_B + I_C) R_C - 5$

THATS where THE MISTAKE WAS MADE IN SOLUTION :)

wrong here Because should be

$I_C = I_E - I_B$