52 a) $\hat{U}_2 = U_c + 2 \cdot 0{,}70$

$\hat{U}_2$: SPÄNNINGEN ÖVER N_2; U_c: 8,0 V

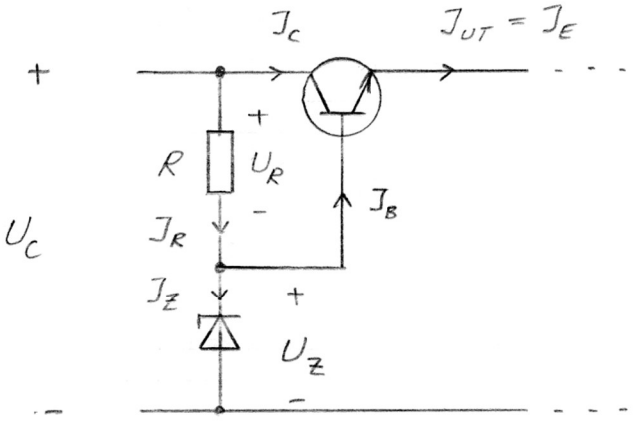
$\Rightarrow \hat{U}_2 = 9{,}4\ V$

$$\frac{N_1}{N_2} = \frac{\hat{U}}{\hat{U}_2} \rightarrow \frac{N_1}{N_2} = \frac{230\sqrt{2}}{9{,}4} \approx \underline{\underline{35}}$$

b) $U_{UT} = U_Z - U_{BE} \Rightarrow \underline{\underline{U_{UT} = 4{,}9\ V}}$

(U_Z: 5,6 V; U_{BE}: 0,70 V)

c)



$J_R = J_Z + J_B$

$J_R = \frac{U_R}{R} = \frac{U_C - U_Z}{R} \rightarrow J_R = 20\ mA$

$0{,}020 = 0{,}010 + J_B \rightarrow J_B = 10\ mA$

$J_{UT} = J_E = J_B + J_C = J_B + h_{FE} \cdot J_B = J_B(1 + h_{FE})$

$\Rightarrow \underline{\underline{J_{UT_{MAX}}}} = 0{,}010(1 + 99) = \underline{\underline{1{,}0\ A}}$