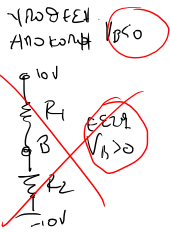
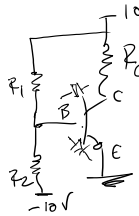


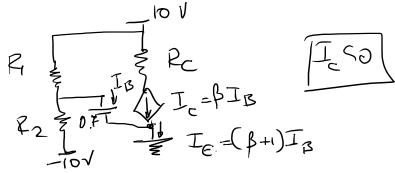
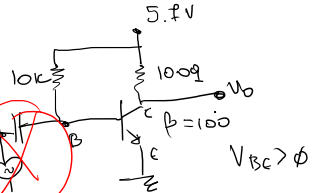
$$\frac{V_o}{V_i} \quad R_c = 100\Omega \quad R = 10k\Omega$$

ENEPPOΣ KOPOZ  $\Rightarrow V_{BE} = 0.7V \Rightarrow V_B = 0.7V$



YΠOΘEΣΗ ANO KOYH  $V_B < 0$   
 $V_B > 0$   
 YΠOΘEΣΗ KOPOZ  
 $I_c = \beta I_B$   
 $I_c < \beta I_B$   
 AN ANEISEXYEI  
 TENIKA ΠPOTE NA EINAI ETHN ENEPPO TTPPOXH.

DC ANANYEH.



YΠOΘEΣΗ BJT ENEPPOZ TTPPOXH. ΘHM

$$V_{BE} = 0.7V$$

$$I_c = \beta I_B = 100 I_B$$

$$V_{CE} > 0.2V$$

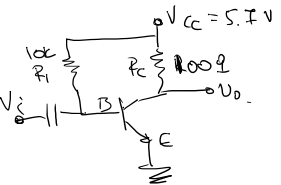
$$I_B = \frac{5.7V - 0.7V}{10k\Omega}$$

$$\Rightarrow I_B = \frac{5}{10} mA = 0.5 mA \Rightarrow I_B = 0.5 mA$$

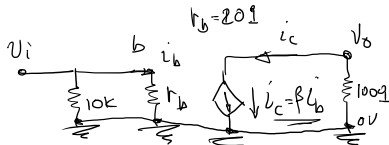
$$I_c = 100 \times 0.5 mA = 50 mA \Rightarrow I_c = 50 mA$$

$$V_{CC} = V_{Rc} + V_{CE} \Rightarrow 5.7 = 100 \times I_c + V_{CE} \Rightarrow V_{CE} = 5.7V - 100 \times 50 mA = 5.7V - 5V = 0.7V$$

$\Rightarrow$  TTPPOMATI BJT ETHN ENEPPO TTPPOXH.  $V_{CE} > 0.2V$



AC  
 ISOYNTAWO



$$0V - V_o = 100 \cdot i_c = (100\Omega) \cdot \beta i_b$$

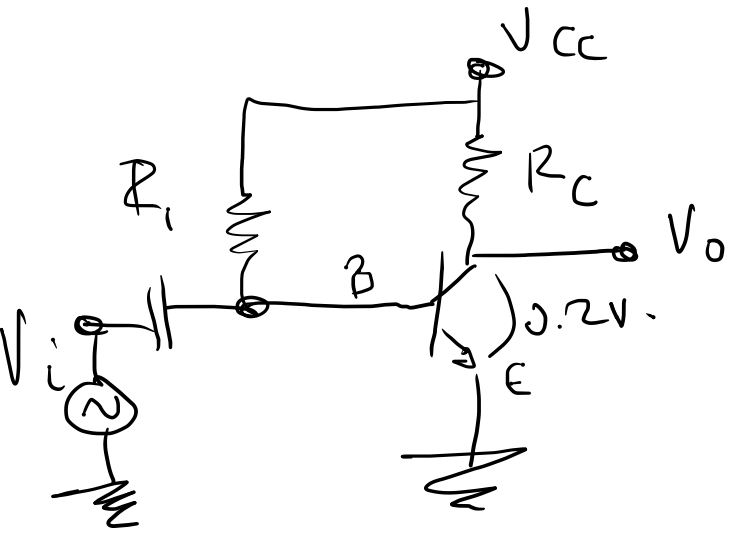
$$V_o = -10000 \cdot i_b$$

$$V_i = r_b \cdot i_b = 20 \cdot i_b$$

$$\frac{V_o}{V_i} = - \frac{10000 \cdot i_b}{20 \cdot i_b} = -5000$$

$$\frac{V_o}{V_i} = -5000$$

ΕΣΤΩ ΒJT ΕΣΩΝ ΙΣΟΡΟ

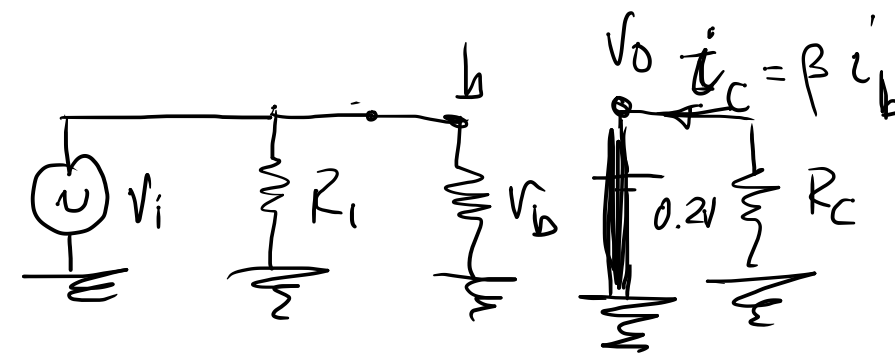


$$\frac{V_o}{V_i} = ;$$

ΑC ΑΝΑΛΥΣΗ.

ΠΥΚΝΩΤΗ Ε ΒΡΑΧΥΚΙΩΜΑ.

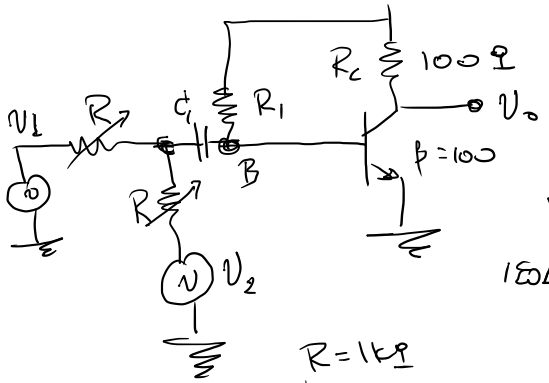
AC  
IECA



$$\frac{V_o}{V_i} = \phi$$

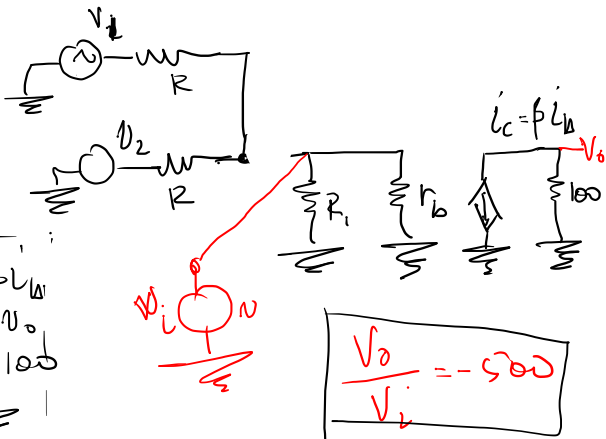
$$V_o = \phi$$

$$V_o = k_1 V_1 + k_2 V_2$$

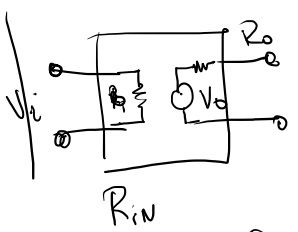
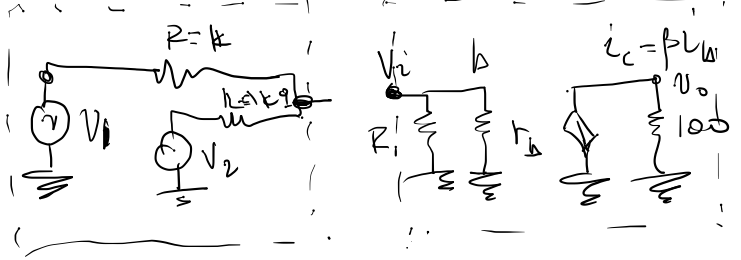


AC ANALYSIS.  
 $V_o = f(V_1, V_2)$

AC  
 $100 \Delta V_B + \Delta V_o$

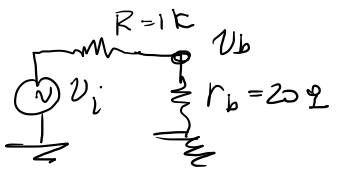


$$\frac{V_o}{V_i} = -500$$



$$\frac{V_o}{V_i} = -500 = \left( \frac{V_o}{V_b} \right)$$

$$R_{in} \approx 20 \Omega$$



$$\left( \frac{V_b}{V_i} \right) = \frac{V_b}{R + r_b} = \frac{20}{1020}$$

$$\frac{V_o}{V_b} \cdot \frac{V_b}{V_i} = \frac{20}{1020} \cdot (-500) = -\frac{100}{102} \approx -\frac{10}{10.2} = -\frac{V_o}{V_i} \Rightarrow \frac{V_o}{V_i} \approx -10$$

$$V_o \approx -10 (V_1 + V_2) \Rightarrow$$

$$\frac{V_o}{V_i} \approx -10$$

APXH YNEPDEEHE ANEEAPTH2EN THH2EN