

$$V_C = 10 - 2000 \times 0.93 \times 10^{-3}$$

$$= 8.14 \text{ volt}$$

$$V_E = 0$$

$$V_{CE} = 8.14 - 0 = 8.14 \text{ volt}$$

$$KVL: 10 - 10^6 I_B - 0.7 = 0$$

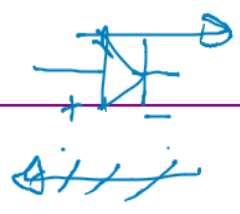
$$I_B = 9.3 \times 10^{-6} = 9.3 \mu A$$

$$\beta = \frac{I_C}{I_B} = 100$$

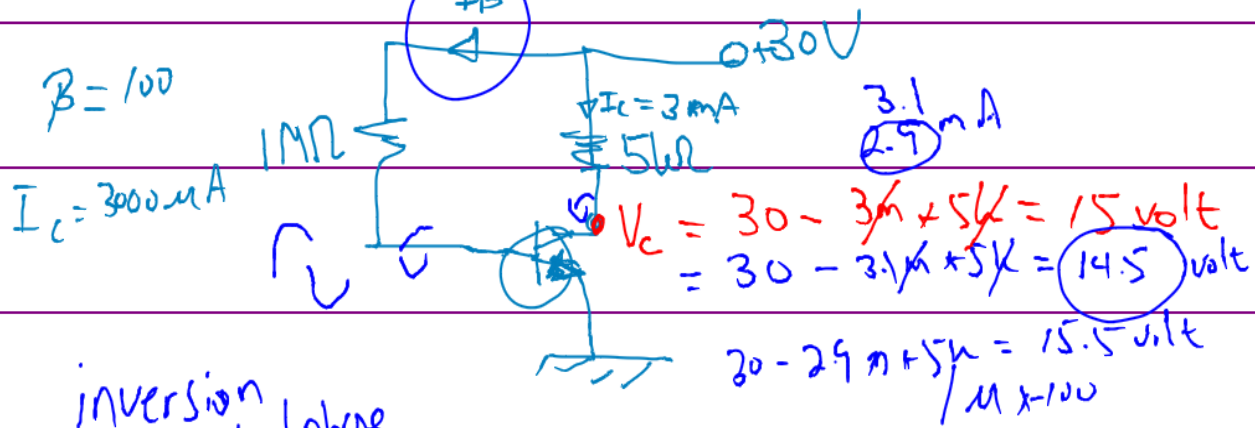
$$I_C = 100 I_B = 0.93 \text{ mA}$$

$$(V_C - V_E) - (V_B - V_E)$$

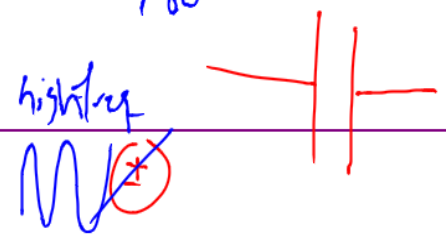
$$V_{CE} = V_C - V_E = 8.14 - 0.7 = 7.44 \text{ volt}$$



$$\frac{30 - 0.7}{1M} = I_B = 30 \mu A$$



inversion
180° out of phase

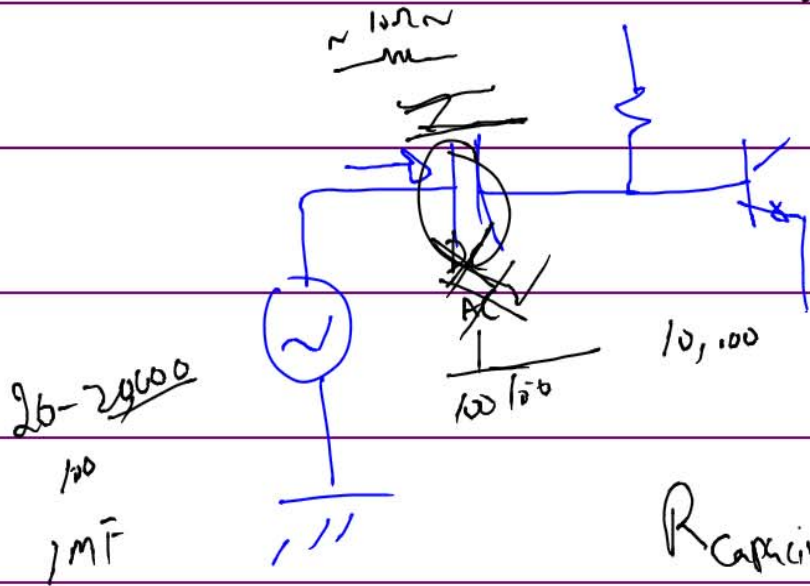


$$I_B = \beta I_C$$

$$100 \mu = 0.1 \text{ m}$$

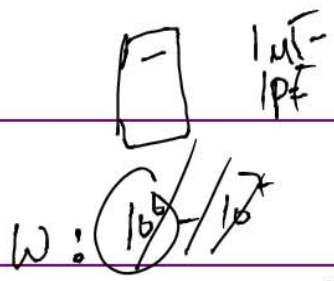
$$\omega = 2\pi f$$

$$f = \frac{1}{T}$$



Capacitive reactance

$$R_{\text{Capacitor}} \equiv X_C \equiv \frac{1}{\omega C}$$



X_C small

$$\frac{1}{\omega C} \ll 1$$

$$\frac{1}{\omega} \ll C$$

$$\frac{1}{10^4 \times 10^{-6}} = \frac{10}{1000} \rightarrow \frac{1}{100}$$

$$C = 10 \mu F$$

$$\frac{1}{10^6} = 1 \mu F$$

$$\frac{1}{10^7} = 0.1 \mu F$$