



$$V_{BB} = (I_B + I_C) R_E + V_{EB}$$

$$= I_E R_E + V_{EB}$$

$$I_E = \frac{V_{BB} - V_{EB}}{R_E} \approx I_C$$

$$V_{CC} = I_E R_E + V_{EC} + I_C R_C$$

$$\approx I_C R_E + V_{EC} + I_C R_C$$

$$V_{EC} = V_{CC} - I_C (R_E + R_C)$$