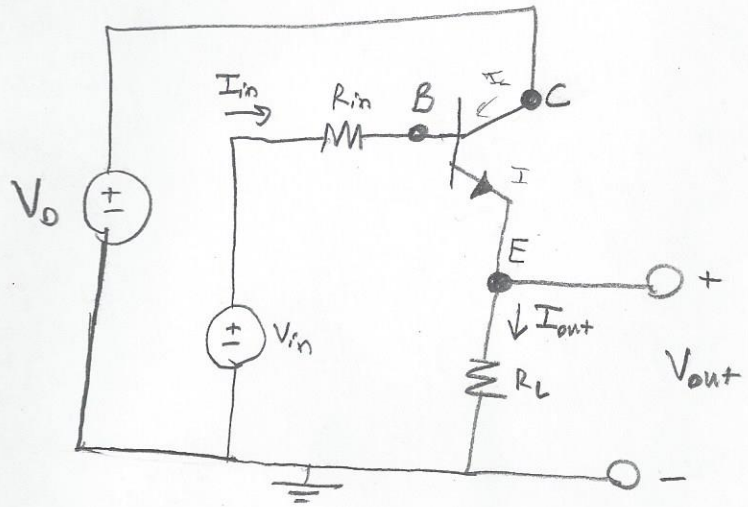
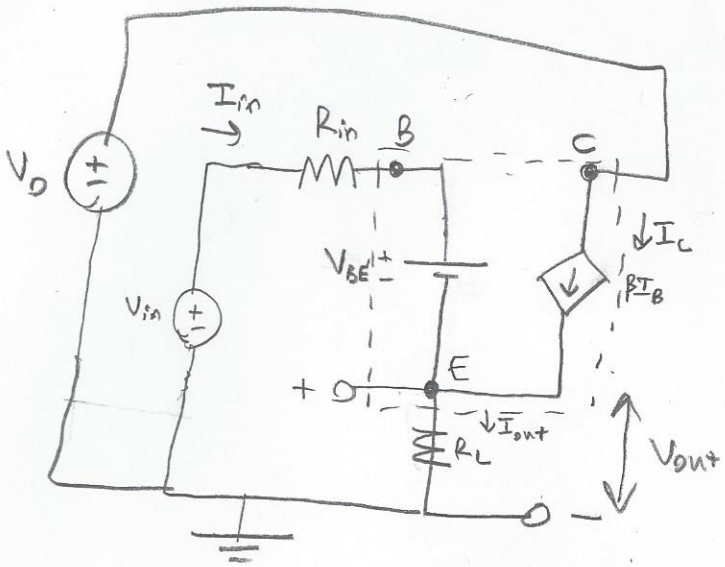
(7)



$A_V = \frac{?}{} = \frac{V_{out}}{V_{in}}$ $\quad V_{in} >> V_{BE}$

$A_I = \frac{I_{out}}{I_{in}}$



$I_{out} = \beta I_{in}$

$A_I = \frac{\beta I_{in}}{I_{in}} = \beta$

$\frac{V_{in} - V_{BE}}{R_{in}} = I_{in}$

$V_{in} = I_{in} R_{in}$

$V_{out} = \beta I_{in} R_L$

$A_V = \frac{\beta I_{in} R_L}{V_{in}}$

$A_V = \frac{\beta I_{in} R_L}{I_{in} R_{in}}$

$$A_V = \frac{\beta R_L}{R_{in}}$$

$$A_I = \beta$$