

BJT Amplifier

Common Emitter Amp (H.11)

20170206

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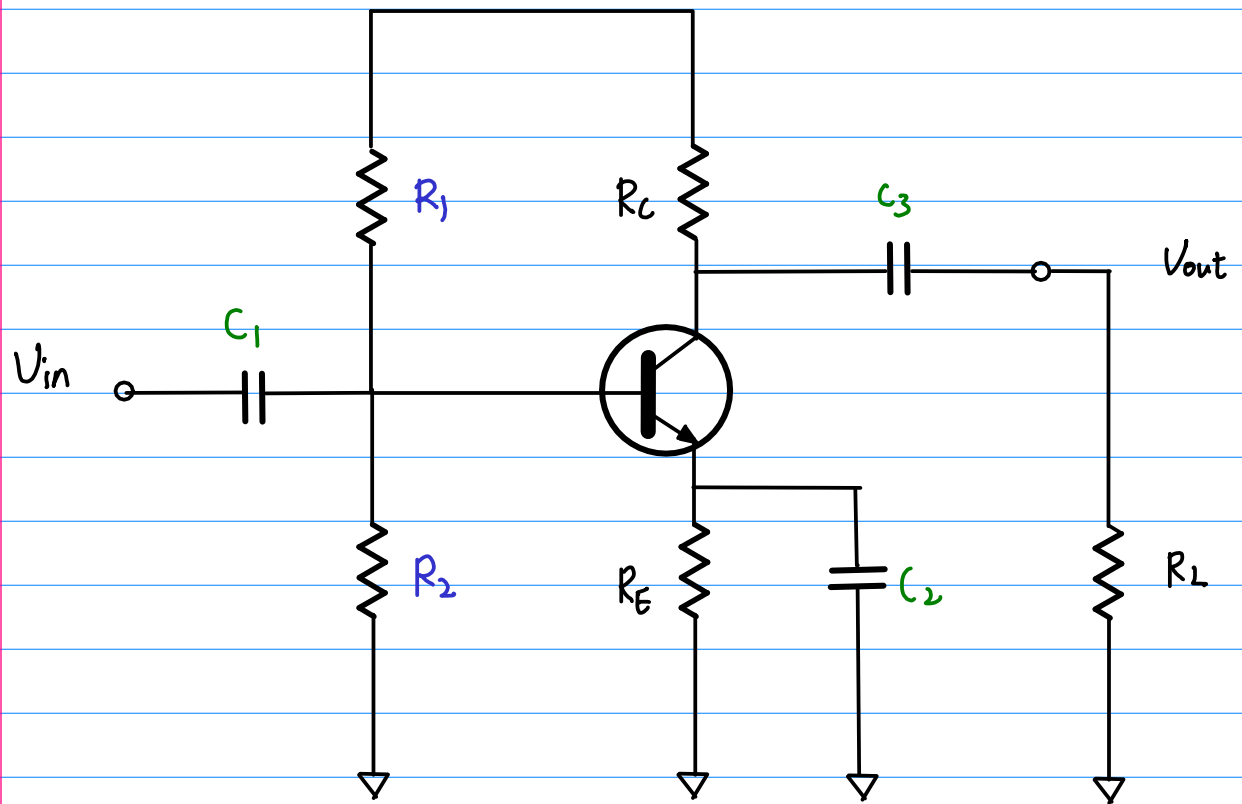
References

Based

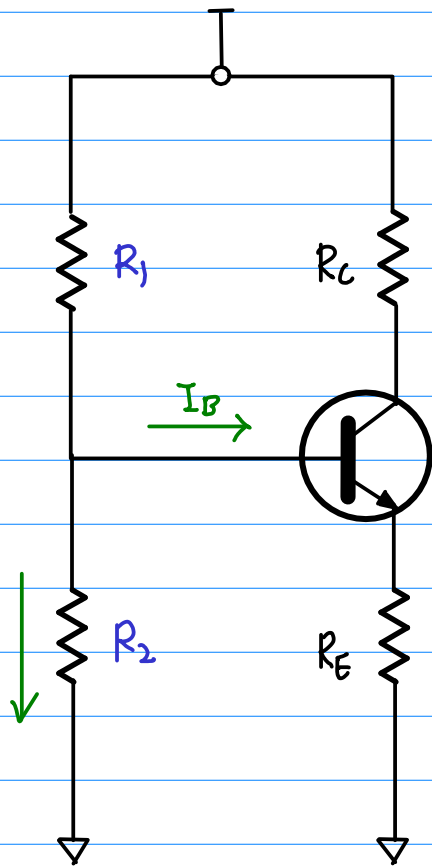
[1] Floyd, Electronic Devices 7th ed

[2] Cook,

[2] en.wikipedia.org



DC Analysis



AC Ground

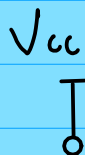


C_1, C_2, C_3 - effectively short

their values are selected

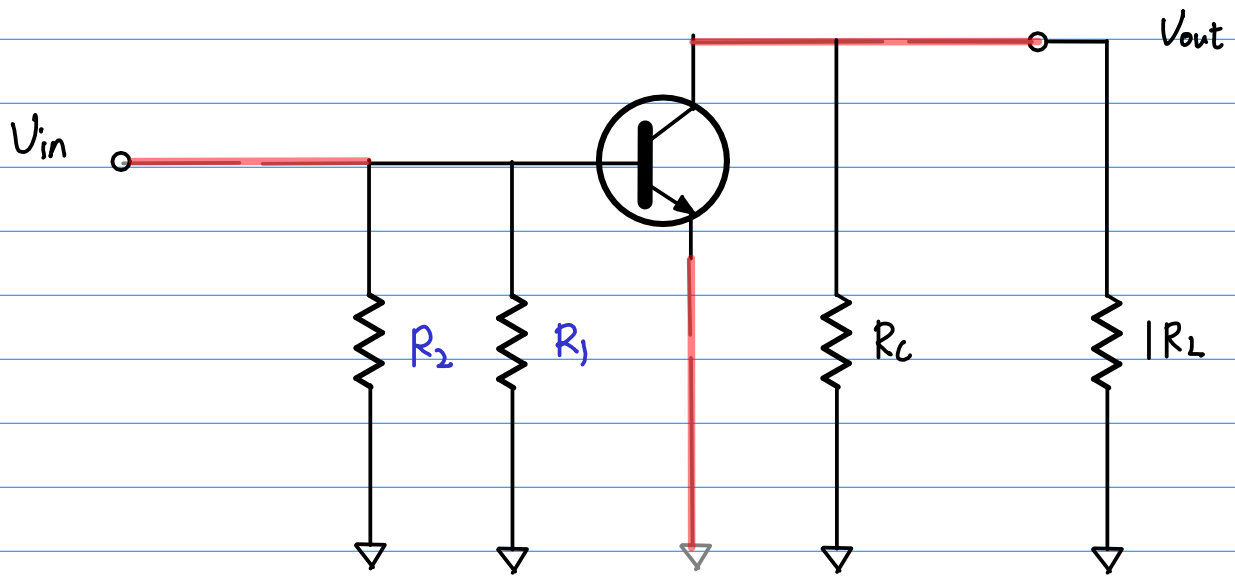
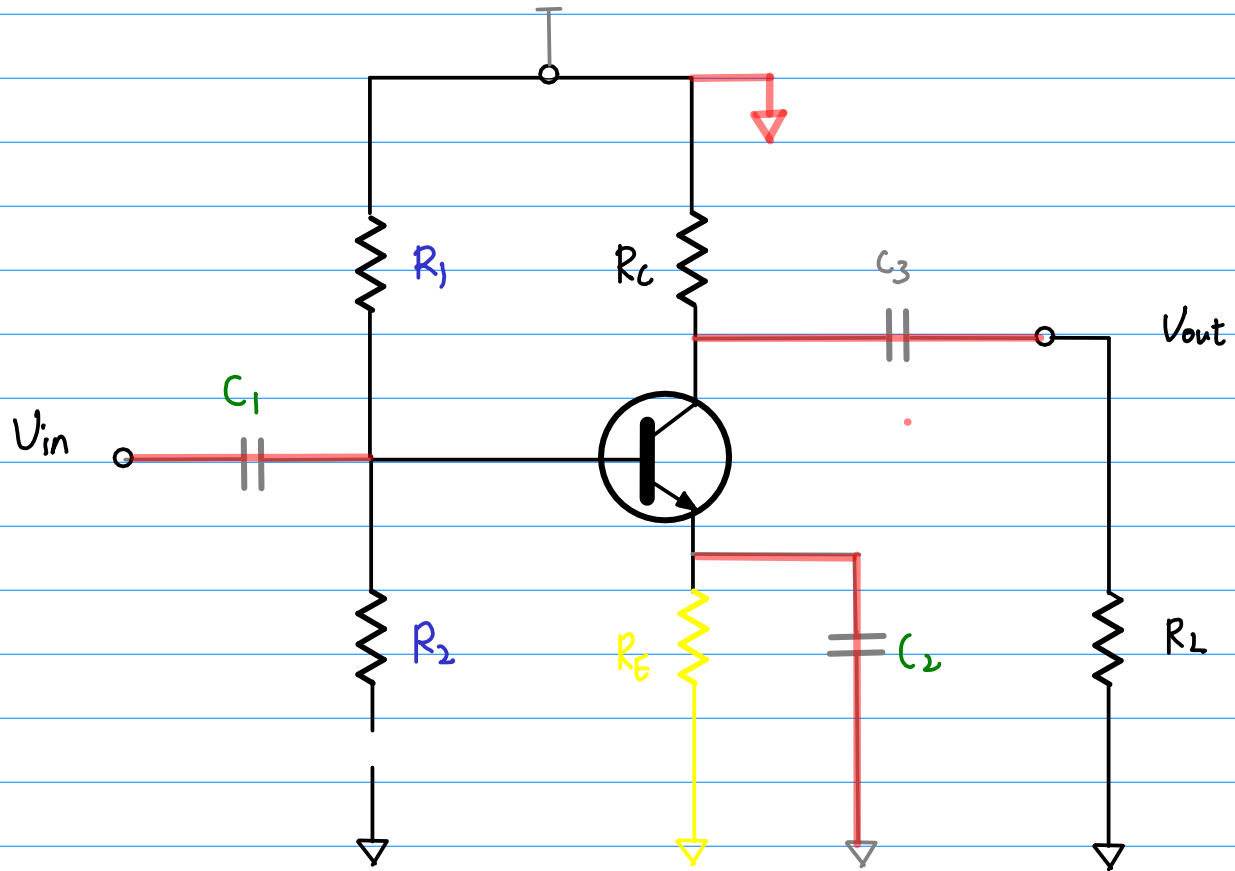
$$\text{s.t. } X_C = \frac{1}{j\omega C} \approx 0 \Omega$$

at the signal frequency (ω)

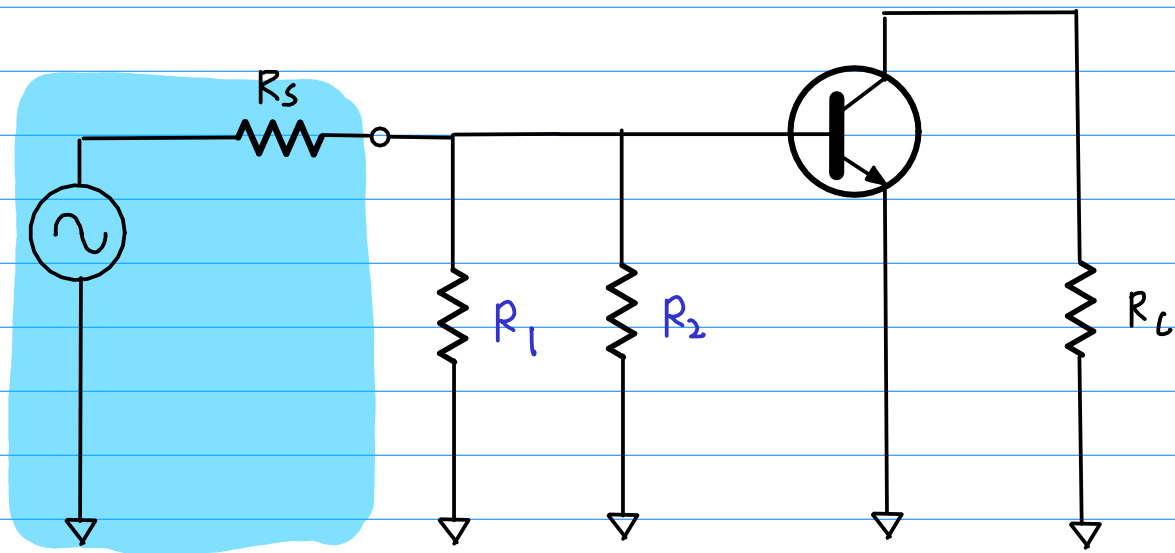
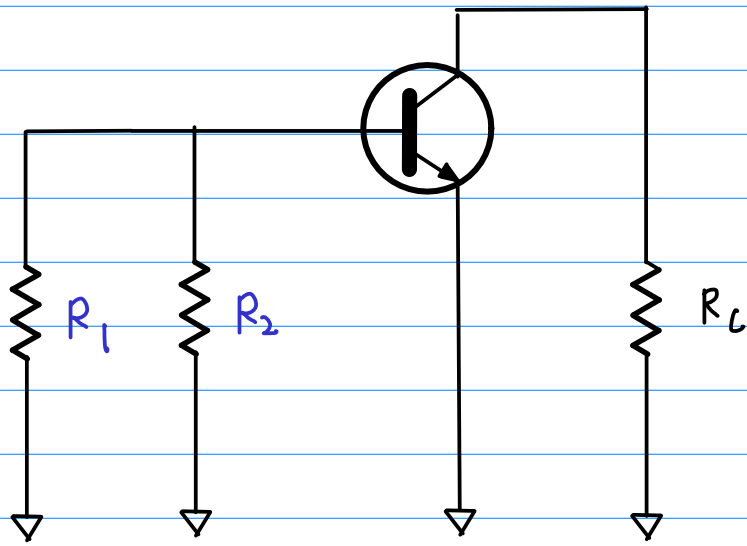


dc source

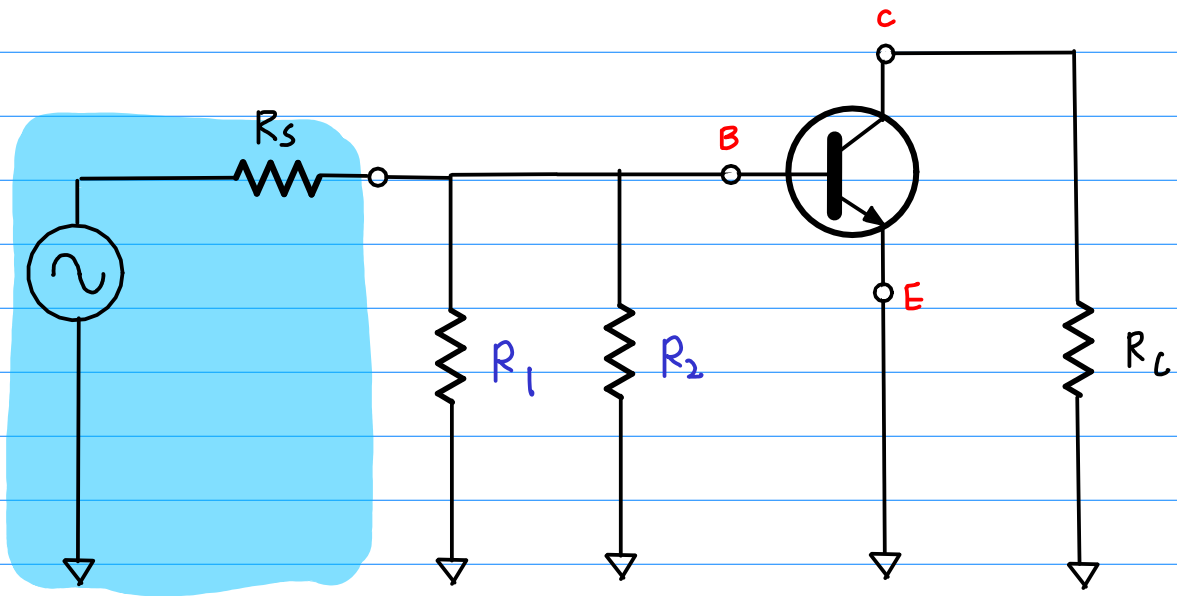
ac ground



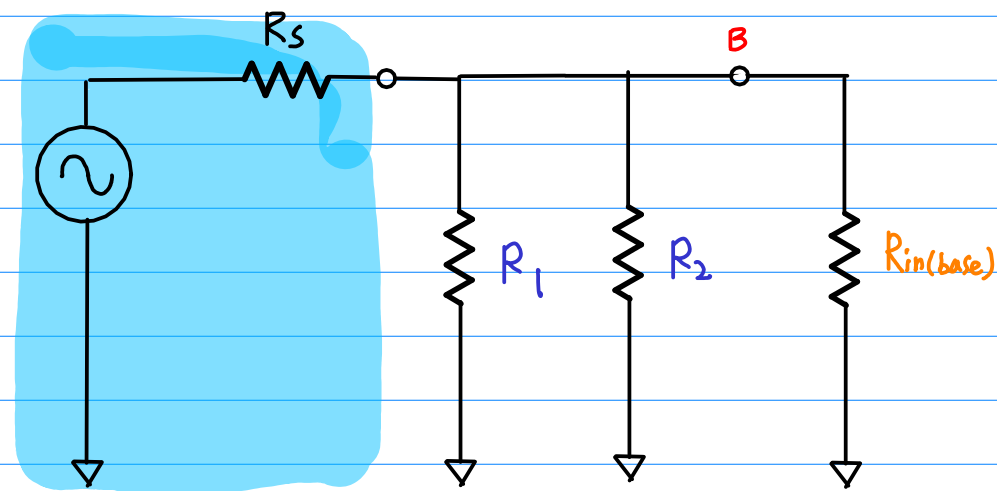
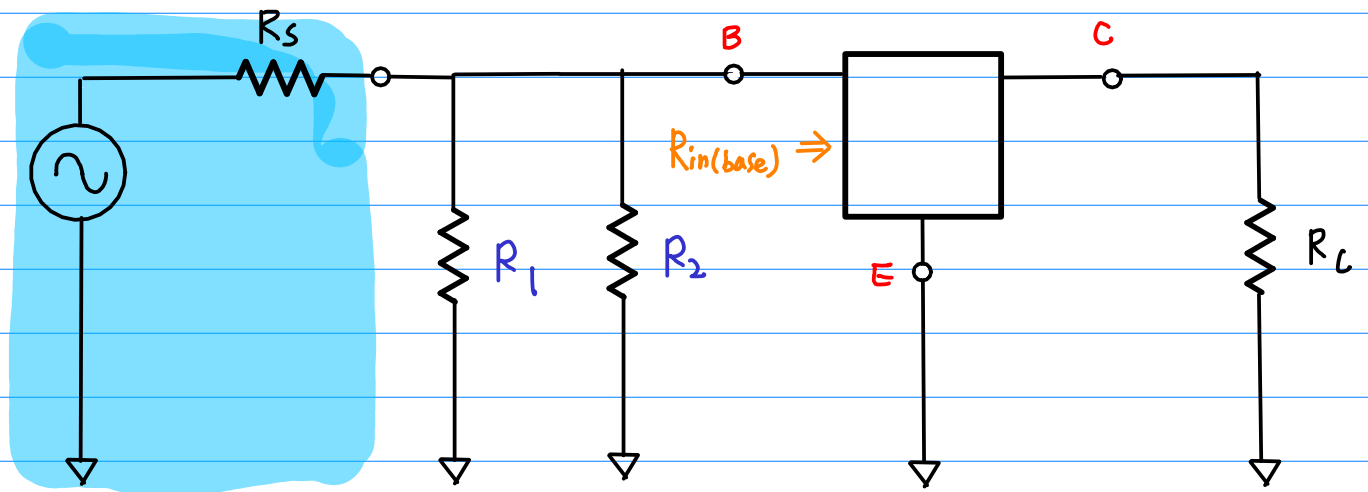
AC Equivalent Circuit

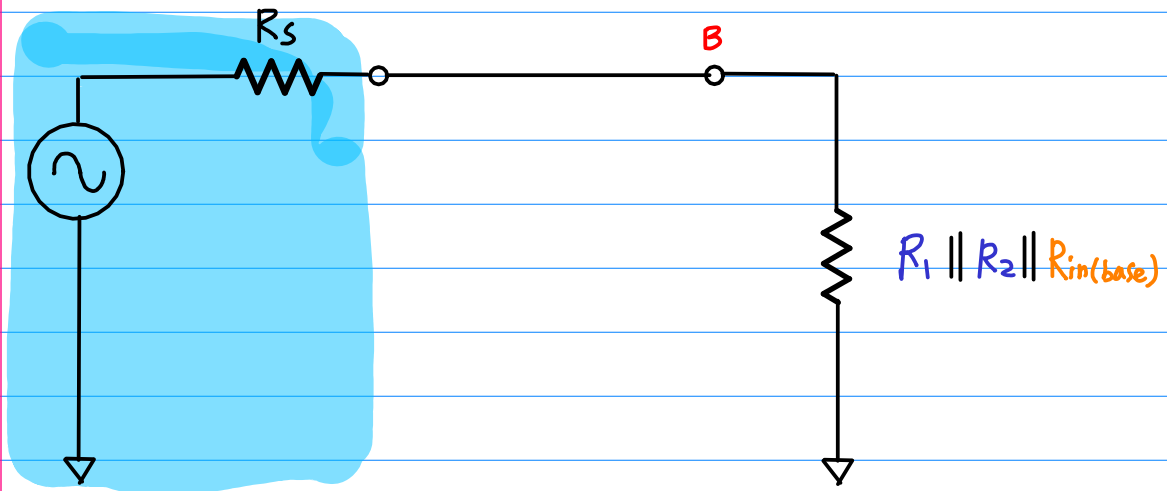
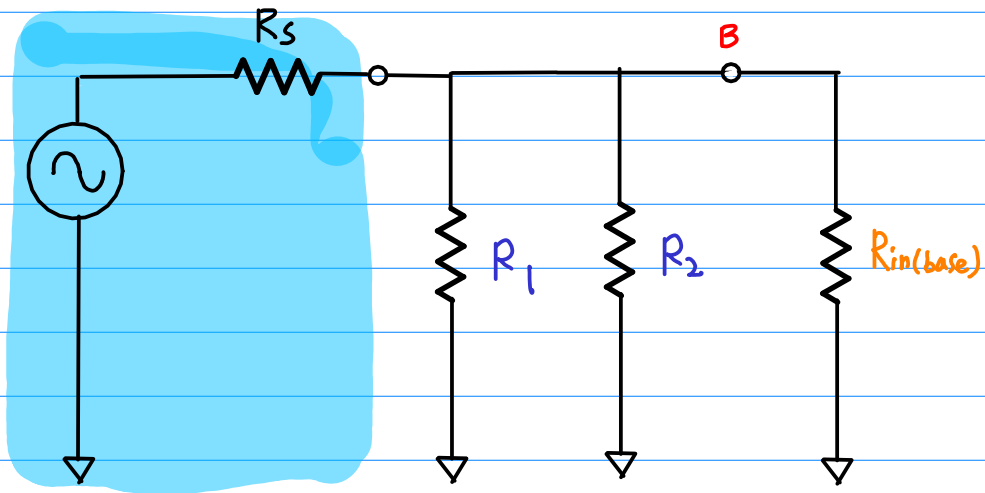


AC source

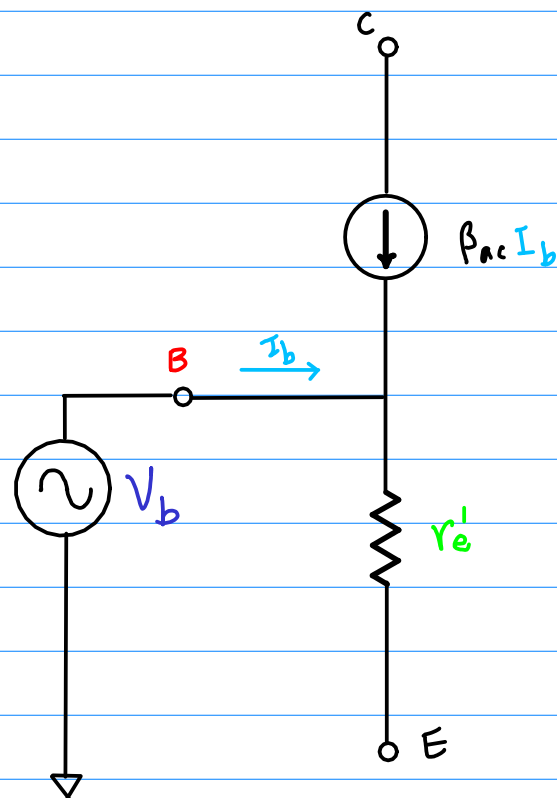
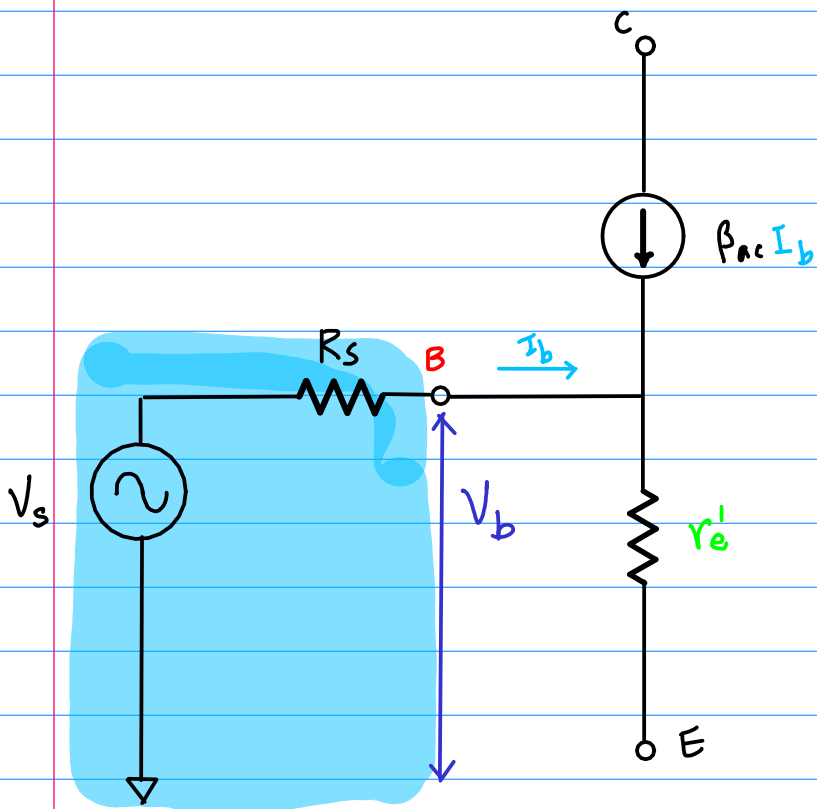
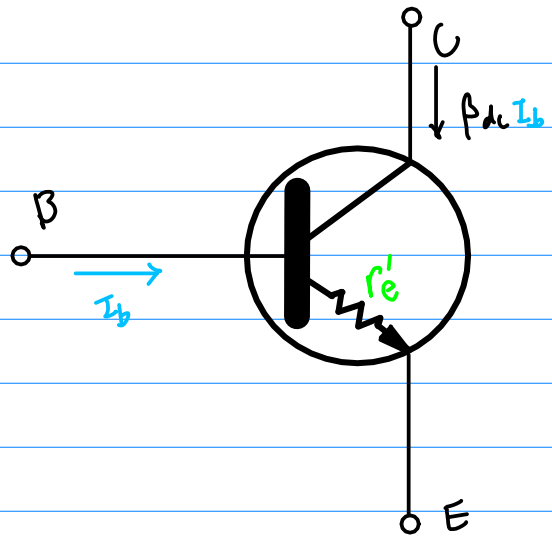
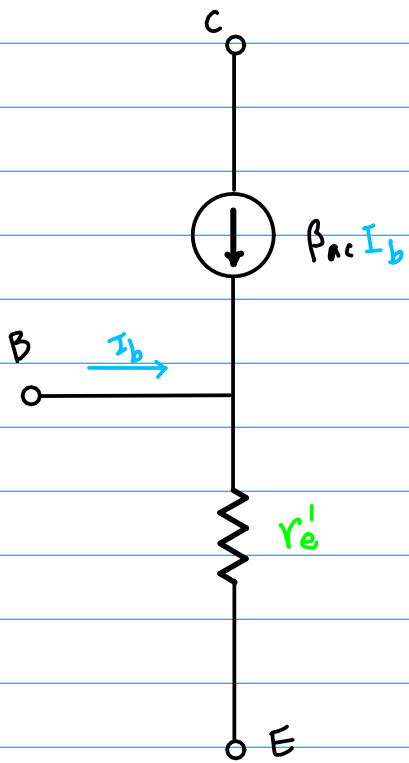


AC source

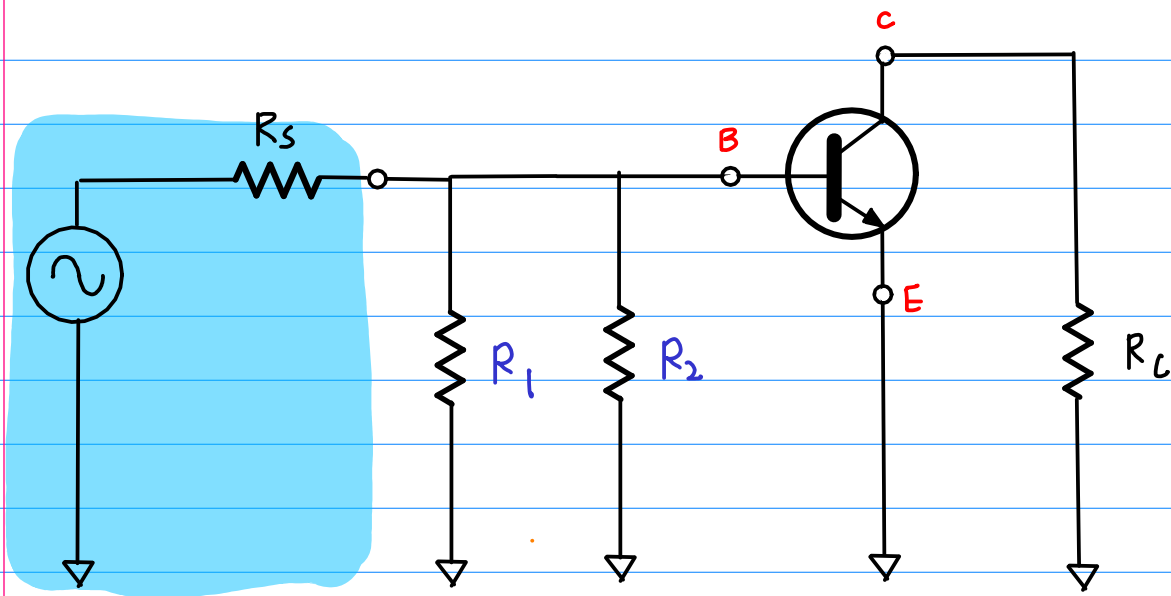




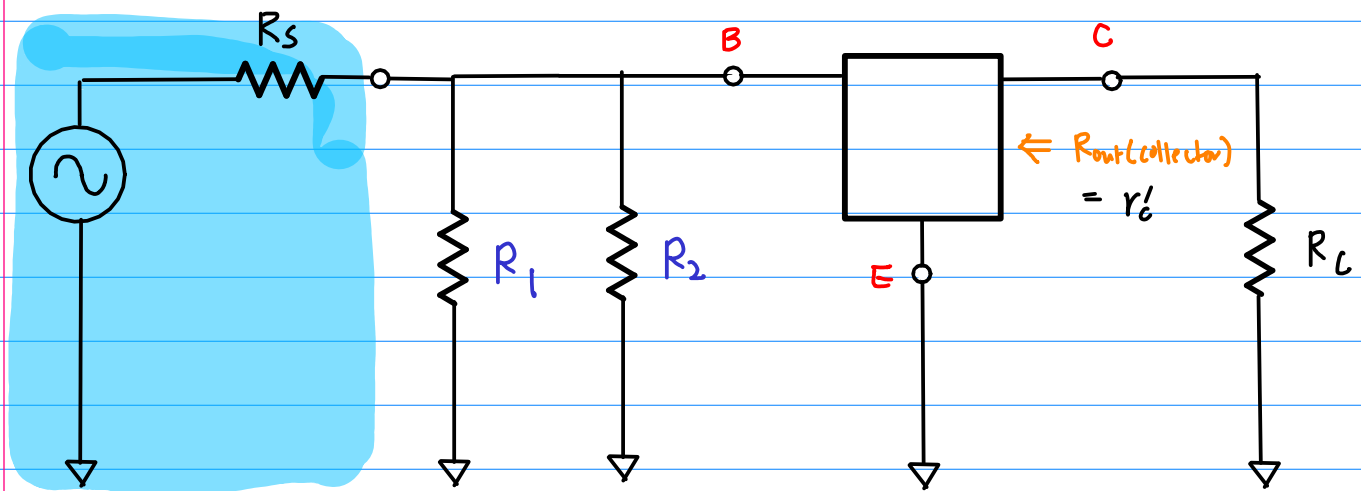
Input Resistance



Output Resistance



AC source



$$R_{out}(\text{collector}) = r'_c \parallel R_C \\ \approx R_C \quad (r'_c \gg R_C)$$

