BJT Bias
Base Bias (H.6)

20170425

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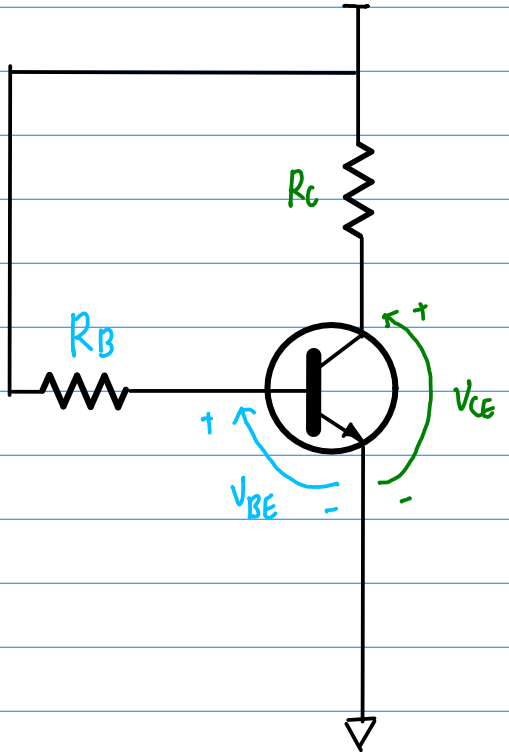
References

Based

[1] Floyd, Electronic Devices 7th ed
[2] Cook,

[2] en.wikipedia.org

Base Bias

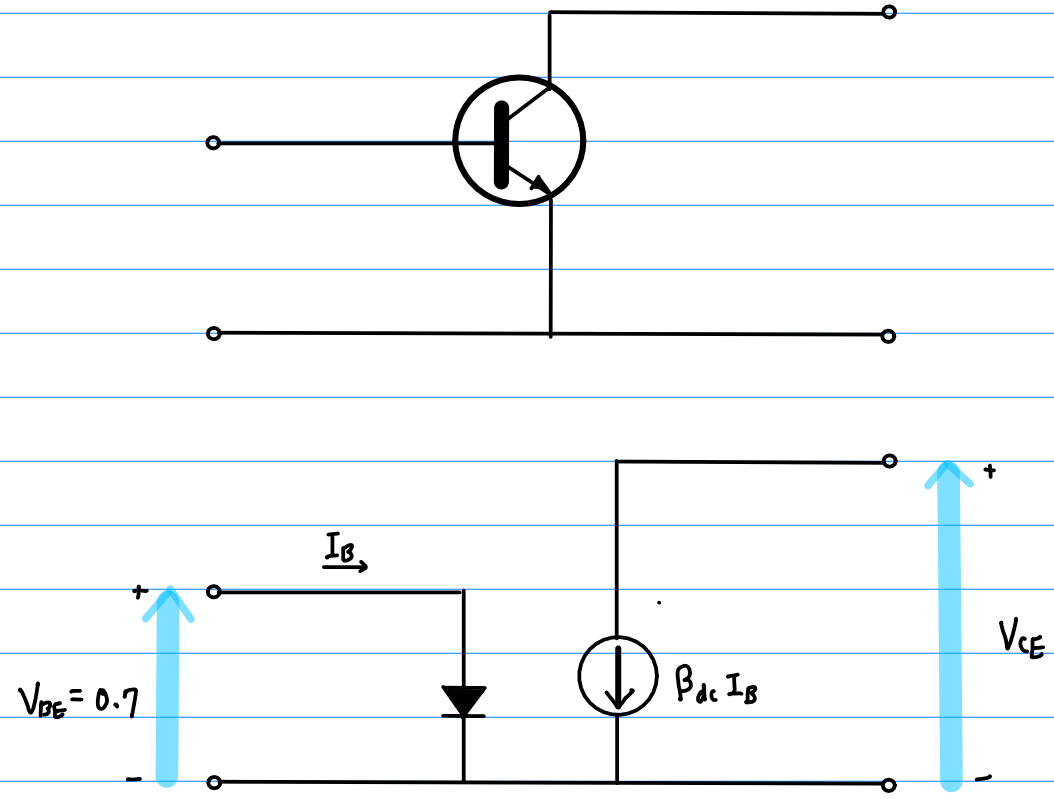


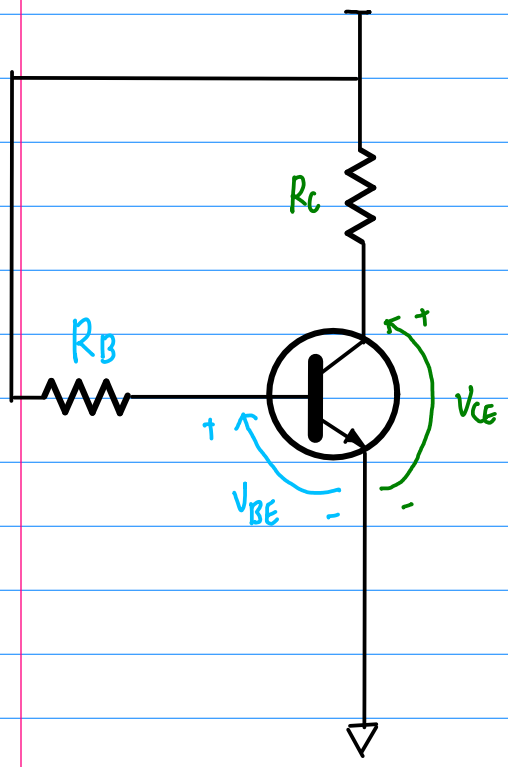
Q point values $I_C \cong I_E$

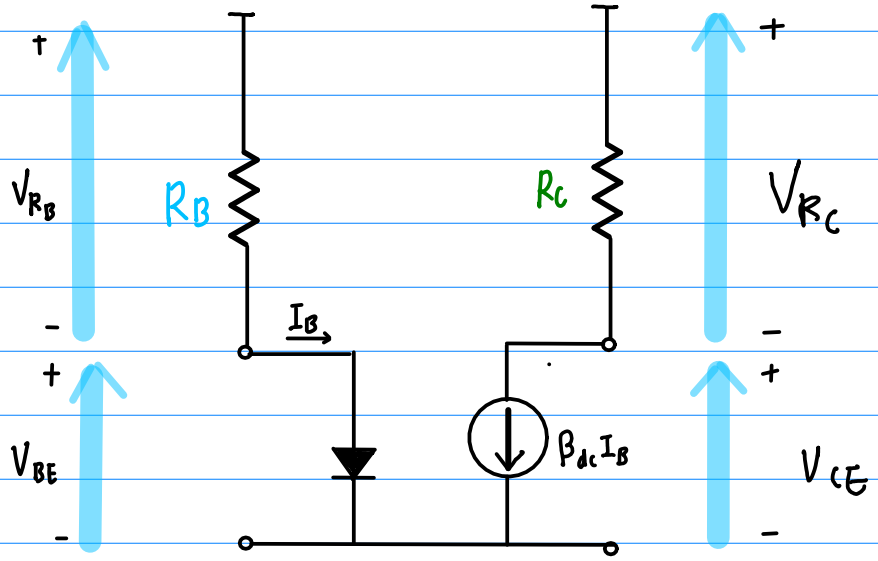
$$I_C = \beta_{DC}\left(\frac{V_{CC} - V_{BE}}{R_B}\right)$$

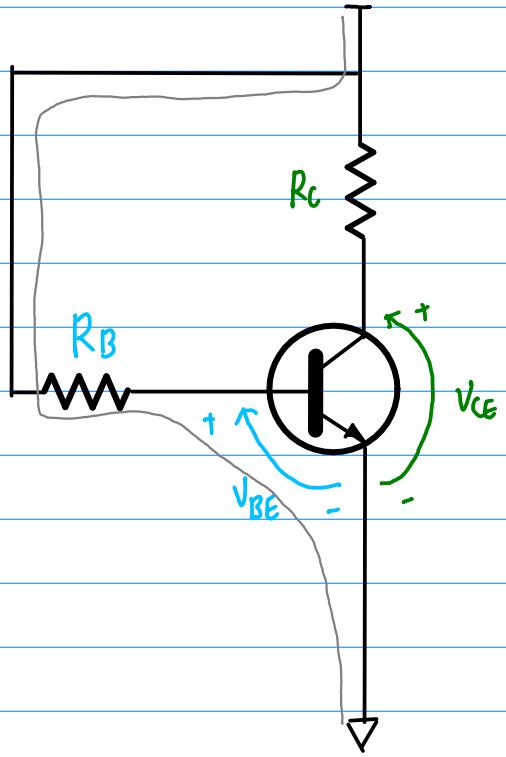
$$V_{CE} = V_{CC} - I_C R_C$$

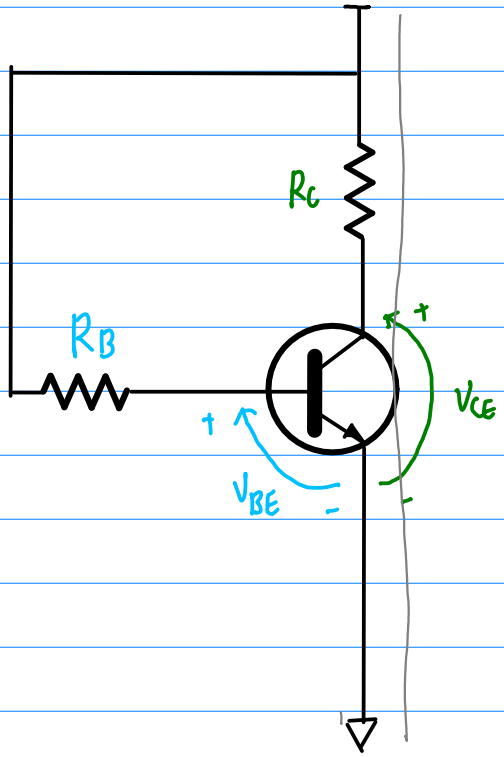
Transistor Approximation




R_C
R_B
+
V_{CE}
+
V_{BE}
-
-


+
V_{R_B}
-
+
V_{BE}
-
R_B
I_B
R_C
$\beta_{dc} I_B$
+
V_{R_C}
-
+
V_{CE}
-





$$V_{CC} - V_{R_B} - V_{BE} = 0$$

$$V_{CC} - I_B R_B - V_{BE} = 0$$

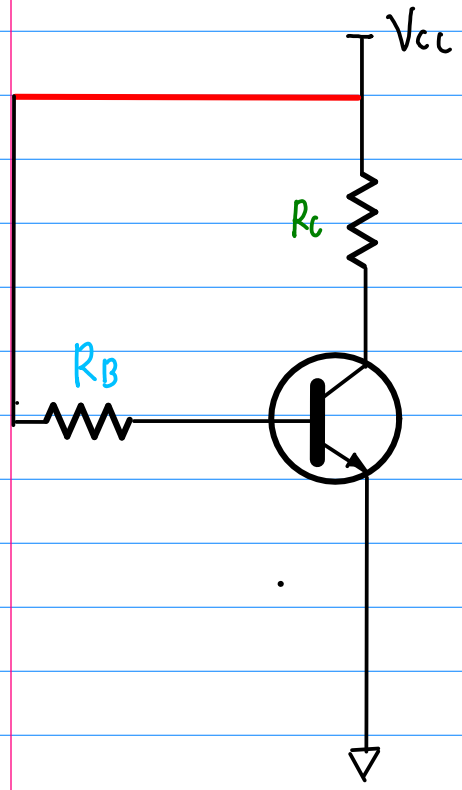
$$I_B = \frac{V_{CC} - V_{BE}}{R_B}$$

$$V_{CC} - I_C R_C - V_{CE} = 0$$

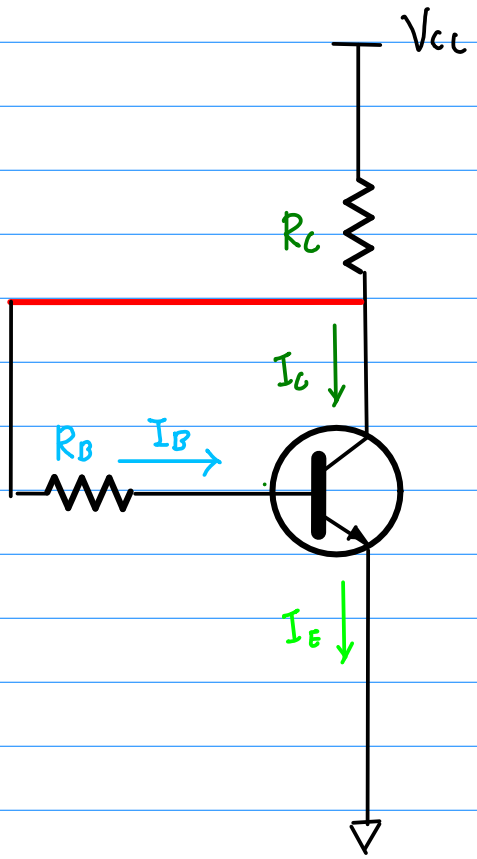
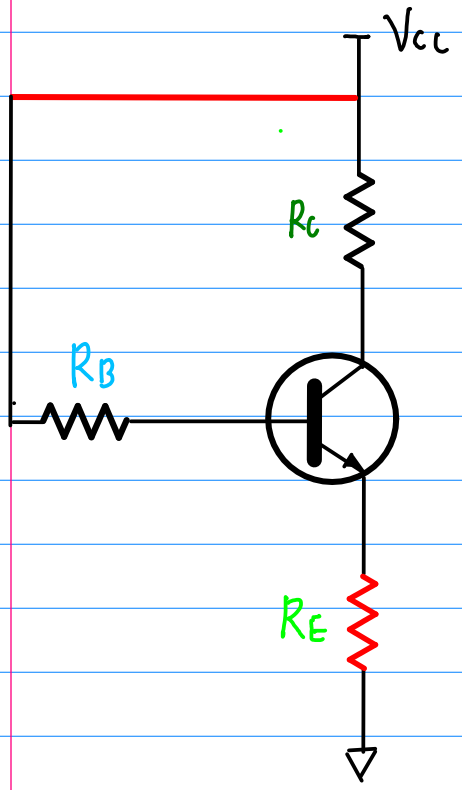
$$V_{CE} = V_{CC} - I_C R_C$$

$$I_C = \beta_{AC} I_B = \beta_{AC}\left(\frac{V_{CC} - V_{BE}}{R_B}\right)$$

Base Bias



Collector Feedback Bias



Emitter Bias