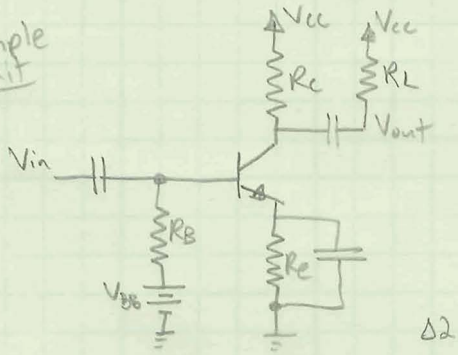
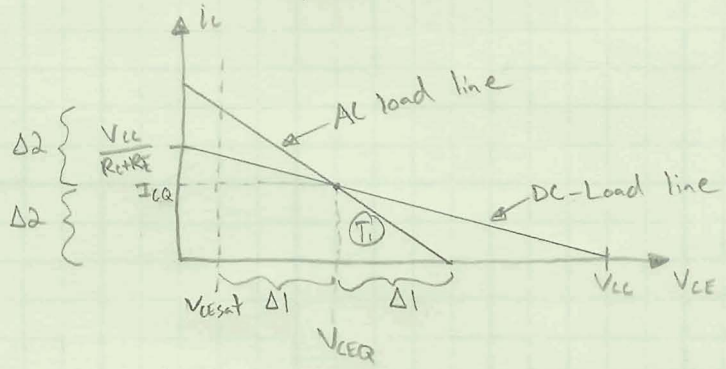
Load Line/Swing Consideration Garbage

Example Circuit



$R_{DC} = R_C + R_E$

$R_{AC} = R_C \| R_L$



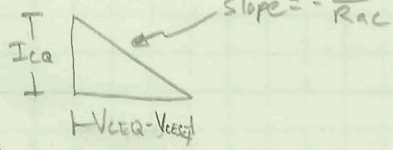
DC

$V_{CEQ} = V_{CC} - I_{CQ}(R_C + R_E)$ ①

$\Delta 1 = V_{CEQ} - V_{CEsat}$

$\Delta 2 = I_{CQ}$

From small triangle, T_1:



$\therefore V_{CEQ} - V_{CEsat} = I_{CQ} \cdot R_{ac}$ ②

① + ②: $V_{CC} - V_{CEsat} - I_{CQ}(R_{DC}) = I_{CQ} R_{ac}$

$I_{CQ}(R_{AC} + R_{DC}) = V_{CC} - V_{CEsat}$

$I_{CQ} = \dfrac{V_{CC} - V_{CEsat}}{R_{AC} + R_{DC}}$

& $V_{CEQ} = \dfrac{R_{AC} V_{CC} + R_{DC} V_{CEsat}}{R_{AC} + R_{DC}}$