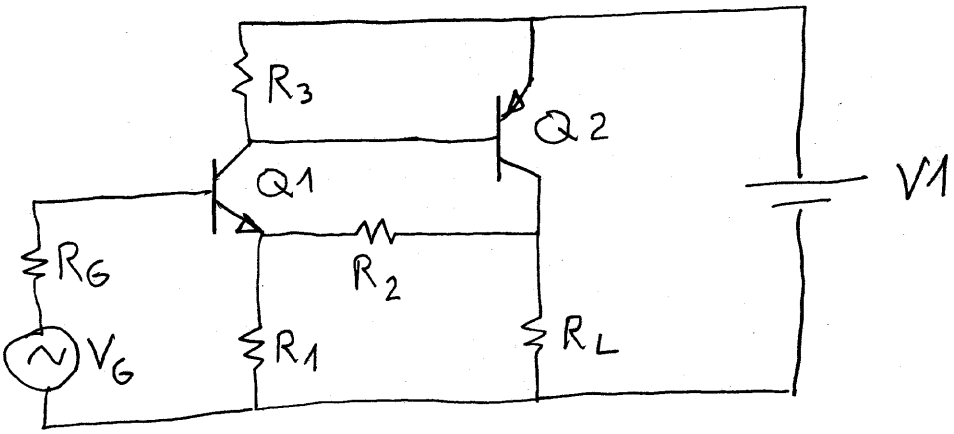
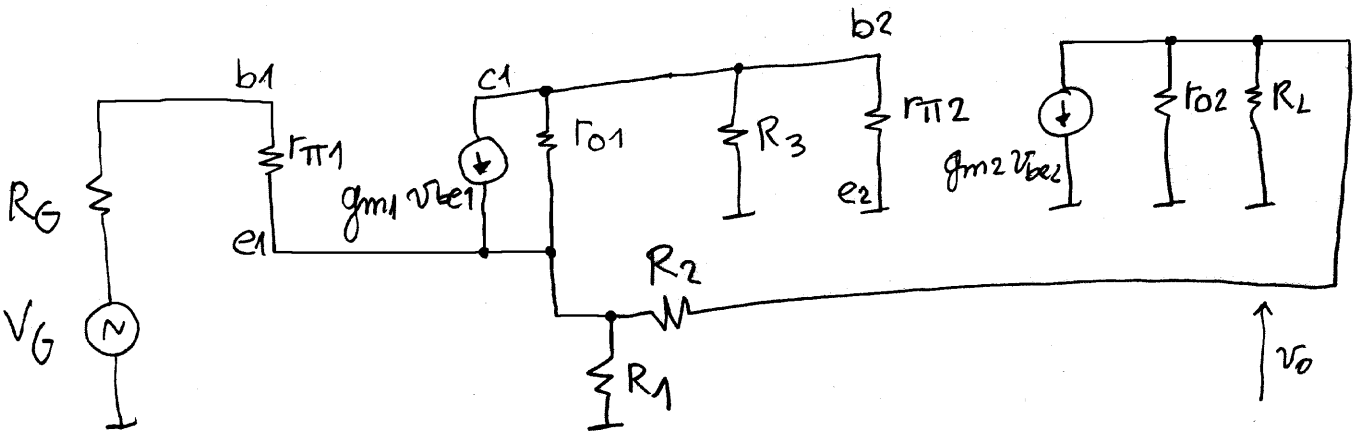
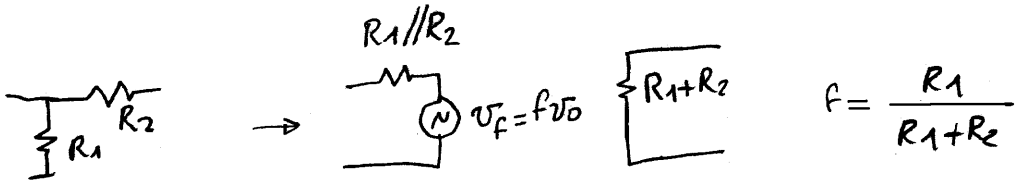
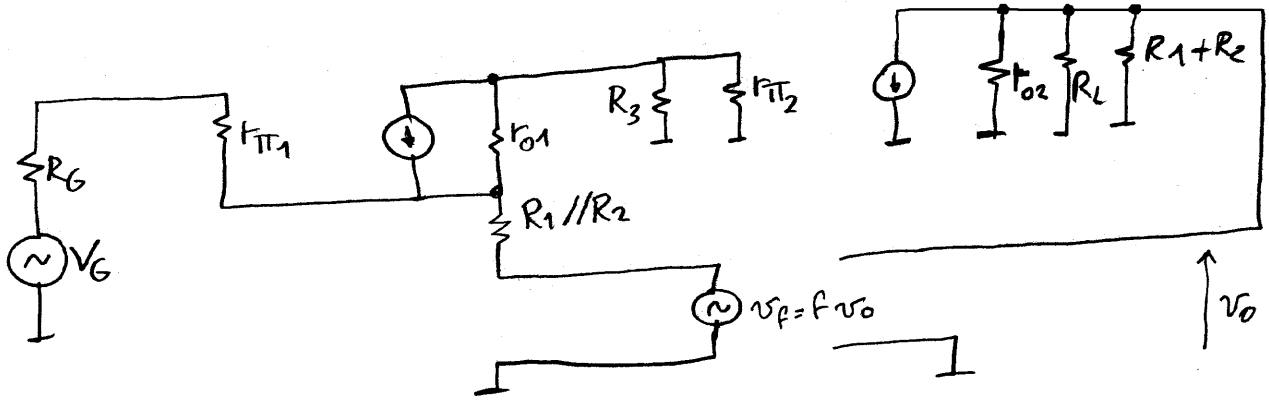
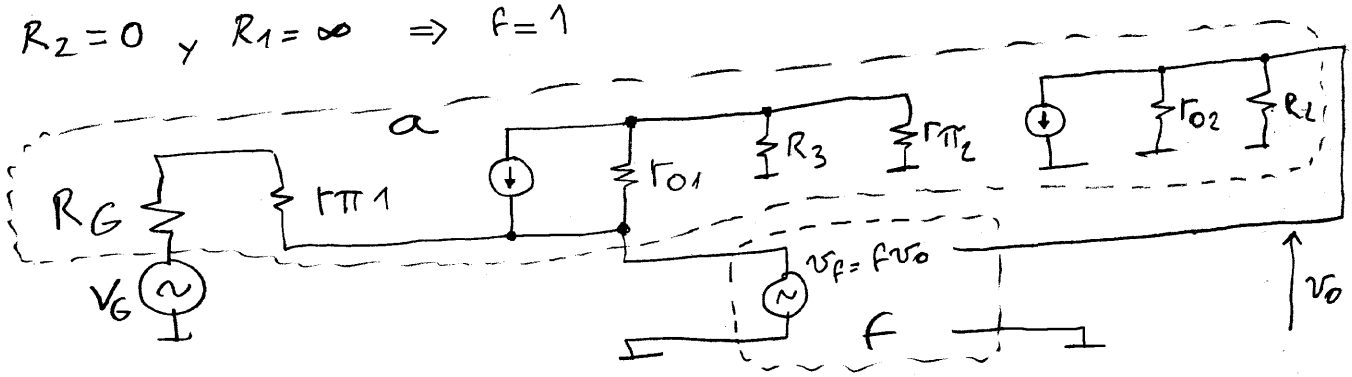








$R_2 = 0$ y $R_1 = \infty$ $\Rightarrow$ $f = 1$



$$A = \frac{v_o}{v_g} = \frac{a}{1+af}$$

$$a = \left.\frac{v_o}{v_g}\right|_{f=0} = \frac{r_{\pi 1}}{r_{\pi 1} + R_G}\, g_{m1} \left(r_{o1} /\!/ R_3 /\!/ r_{\pi 2}\right) g_{m2} \left(r_{o2} /\!/ R_L\right)$$

Supongamos $I_{CQ1} = 10\,mA$ $I_{CQ2} = 100\,mA$

$V_A = 100\,V$ $\beta_1 = 100$ $\beta_2 = 50$ $R_G = 10\,\Omega$

$R_L = 8\,\Omega$

$R_3 = 100\,\Omega$

$r_\pi = \frac{\beta}{g_m}$

$r_o = \frac{V_A}{V_T g_m}$

$g_m = \frac{I_{CQ}}{V_T}$

$V_T = 0{,}026\,V$

$r_{\pi 1} = 260\,\Omega$

$r_{o1} = 10K\,\Omega$

$r_{\pi 2} = 13\,\Omega$

$r_{o2} = 1K\,\Omega$

$g_{m1} = 0{,}3846\,\frac{A}{V}$

$g_{m2} = 3{,}846\,\frac{A}{V}$

$$a \cong 0{,}96 . 0{,}3846\,\frac{A}{V} \cdot 11{,}5\,\Omega \cdot 3{,}846\,\frac{A}{V} \cdot 7{,}9\,\Omega = 129$$

$$A = \frac{v_o}{v_g} = \frac{a}{1+af} = \frac{129}{130} = 0{,}99$$

$$Z_1 = (1+af)\, r_{\pi 1} = 130 . 260\,\Omega \cong 34\,K\Omega$$

$$Z_o = \frac{r_{o2} /\!/ R_L}{1+af} = \frac{7{,}9\,\Omega}{130} \cong 0{,}06\,\Omega$$