

Lista Extra Opamp's Marcelo Perotoni 2015.2

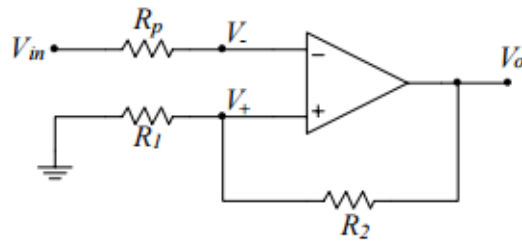
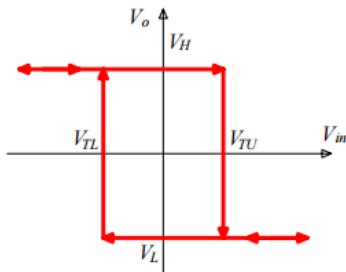
Calcule as curvas de histerese para os circuitos abaixo. Respostas na coluna a esquerda. Considere

$$V_L = -V_{EE}, V_H = V_{CC}$$

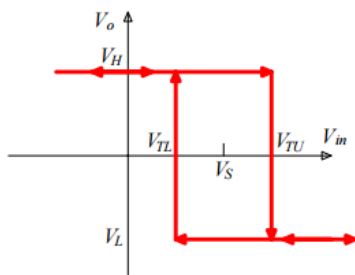
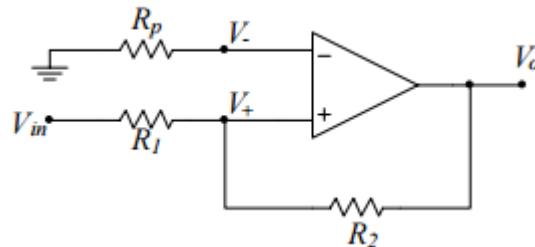
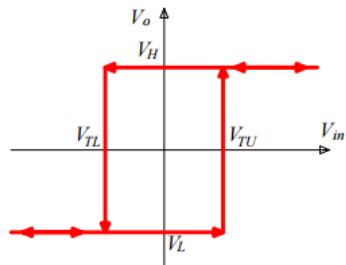
Soluções e teoria extra em [http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-071j-introduction-to-electronics-signals-and-measurement-spring-2006/lecture-notes/24\\_op\\_amps3.pdf](http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-071j-introduction-to-electronics-signals-and-measurement-spring-2006/lecture-notes/24_op_amps3.pdf)

$$V_{TL} \equiv V_L \frac{R_1}{R_1 + R_2}$$

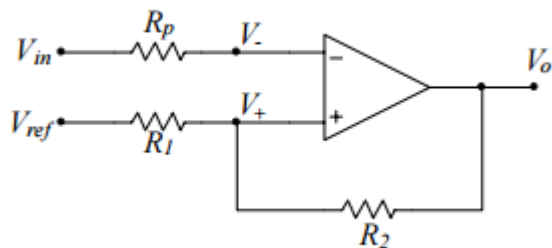
$$: V_{TU} \equiv V_H \frac{R_1}{R_1 + R_2}$$



$$V_{TL} = -\frac{R_1}{R_2} V_H \quad V_T = -\frac{R_1}{R_2} V_L$$



$$V_S = V_{ref} \frac{R_2}{R_1 + R_2}$$



$$V_{TU} = V_s + V_H \frac{R_1}{R_1 + R_2}$$

$$V_{TL} = V_s + V_L \frac{R_1}{R_1 + R_2}$$

$$V_{TU} = V_s - V_L \frac{R_1}{R_2}$$

$$V_{TL} = V_s - V_H \frac{R_1}{R_2}$$

$$V_s = \left(1 + \frac{R_1}{R_2}\right) V_{ref}$$

