P3360 /AEP3630

Lecture 10

Negative Feedback

Good amp:

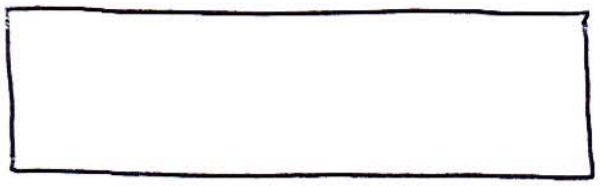
- $R_{in} \gg R_s$
- $R_{out} \ll R_L$
- $G(\omega) = const$

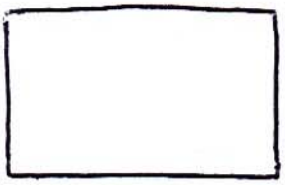
"Bare" op-amp problems:

- small active range
- large G variations
- $G \propto \frac{1}{\omega}$ for $\omega_c \gtrsim 10Hz$
- Rout is fairly large

v_{out} =

②





- throw away _____ to make a stable circuit, indep. of _____

Advantages of negative F.B.

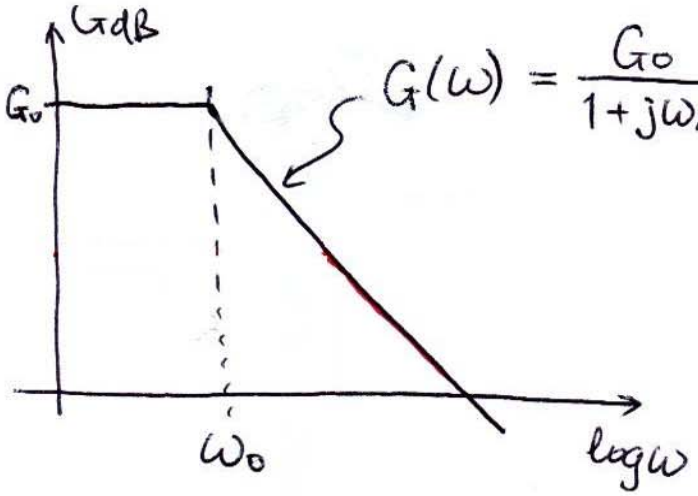
①

②

$(v_{in})_{active}$ =

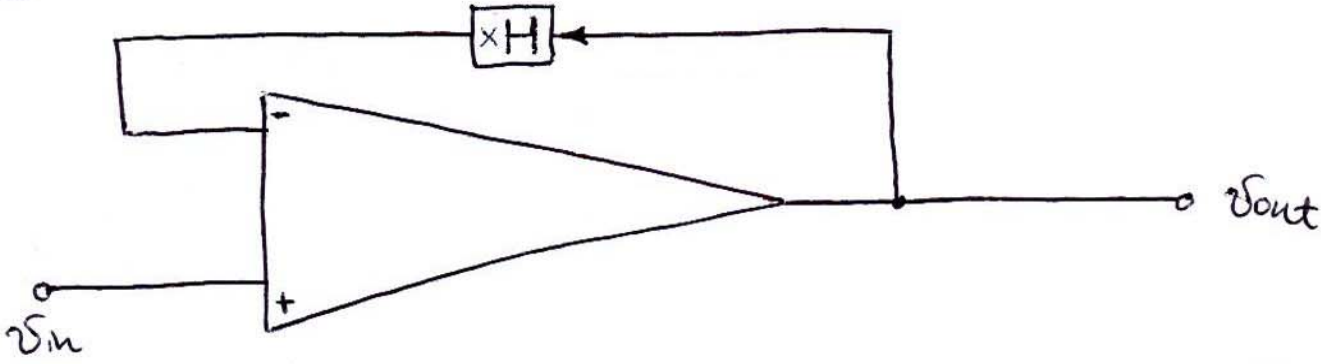
(3)

(3)



$G_{CL} =$

(4)



$R_{in,CL} \equiv$

$v_{out} =$

$v_{out} =$

$R_{out,CL} =$

Rules for analyzing negative F.B circuits

1) current rule :
2) voltage rule :