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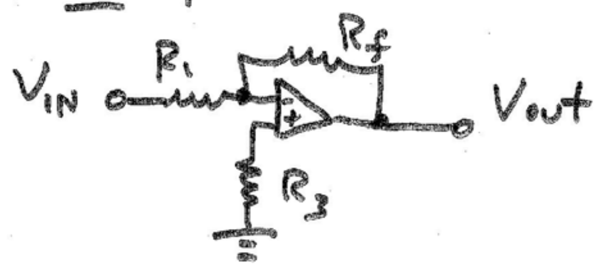
Ex. 4.6 p. 210



① $G = -100 = -R_f/R_1$. CHOOSE $R_1 = 10\,k\Omega$
$R_f = 1\,M\Omega$

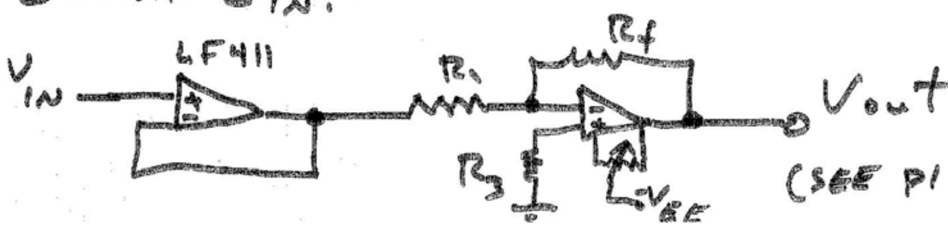
OTHER CHOICES OK.

②
INPUT BIAS CURRENT COMPENSATION:

SET $R_3 = R_1 \parallel R_f$ (SEE LAB MANUAL P. 141 ff.)
$\simeq 10\,k\Omega$

③
OFFSET TRIMMING:

④ HIGH Z_{IN}:



(SEE P190, H. 8H)

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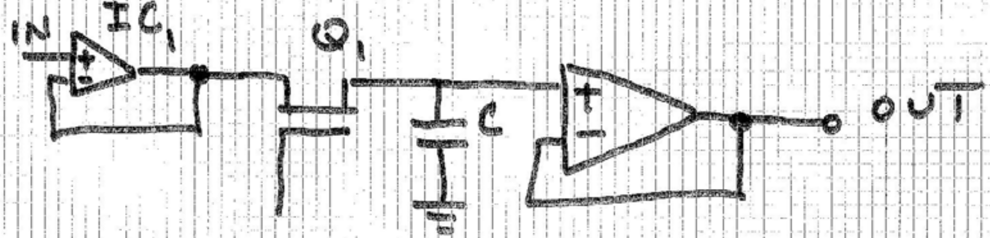
EX 4.8 P220



C CHARGES FROM I FROM IC_1

THIS CURRENT IS FINITE.

CHARGING RATE OF C = SLEW RATE$\Big|_{MAX}$

$$dV/dt = I_{OUT}^{MAX}/C = 10^{-2} A / 0.01 \mu F$$

SLEW RATE = 1 V/μS SEE p47 ff.

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Ex 4.8, Q2.

OUTPUT OF IC_1 FOLLOWS INPUT AND SOURCES SOME I.

$$I^{OUT}_{IC_1} = C \left. \frac{dV}{dt} \right|_{IN}$$

$$= 0.01\,\mu F * 0.1\,V/\mu s = 10^{-3} A.$$

THIS I PRODUCES VOLTAGE DROP ACROSS EFFECTIVE R OF Q1.

VOLTAGE DROP ACROSS R:

$$V = IR$$
$$= 10^{-3} A * 50\,\Omega$$

$$\boxed{V = 50\,mV}$$

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EX 4.8, P220, ©3.

DROOP RATE $\left(dV_c/dt\right)$ IS JUST DUE TO CHARGE LEAKING OFF OF C.

$$I_{LEAK} = C\, dV/dt$$

$$\Rightarrow dV/dt = I_L/C = 1\,mA / .01\,\mu F$$

$\therefore$ DROOP RATE = 0.1 V/s