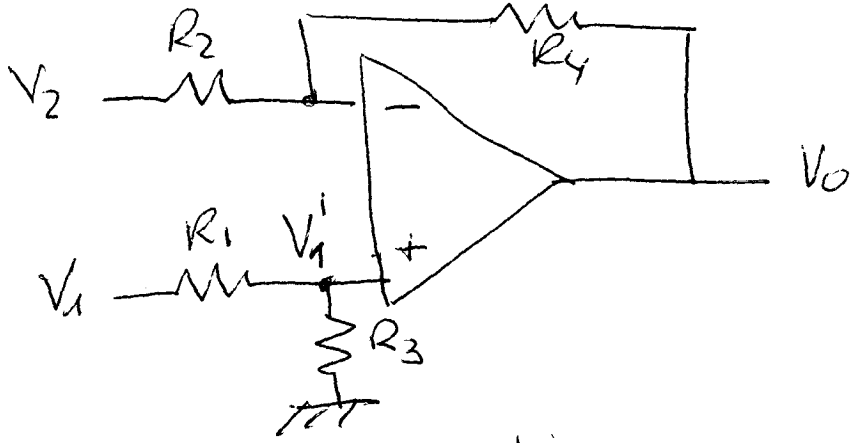
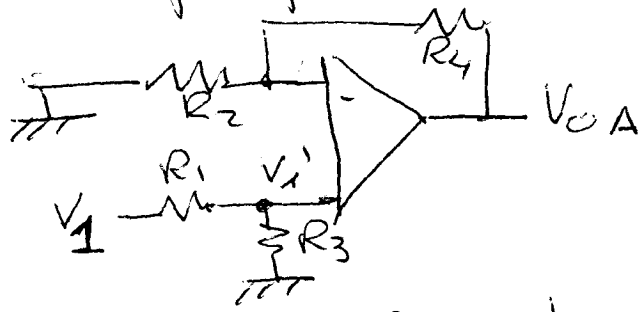
AMPLIFICATEUR SOUSTRACTEUR

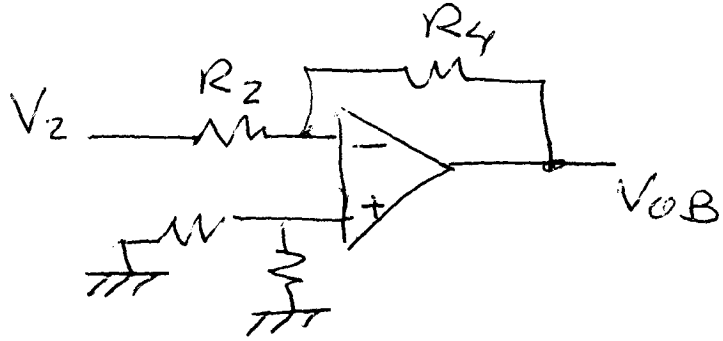


Par superposition



$$V_{OA} = \left(1 + \frac{R_4}{R_2}\right) V_1' =$$

$$V_{OA} = \left(1 + \frac{R_4}{R_2}\right) \frac{R_3}{R_1 + R_2} V_1$$



$$V_{OB} = -\frac{R_4}{R_2} V_2$$

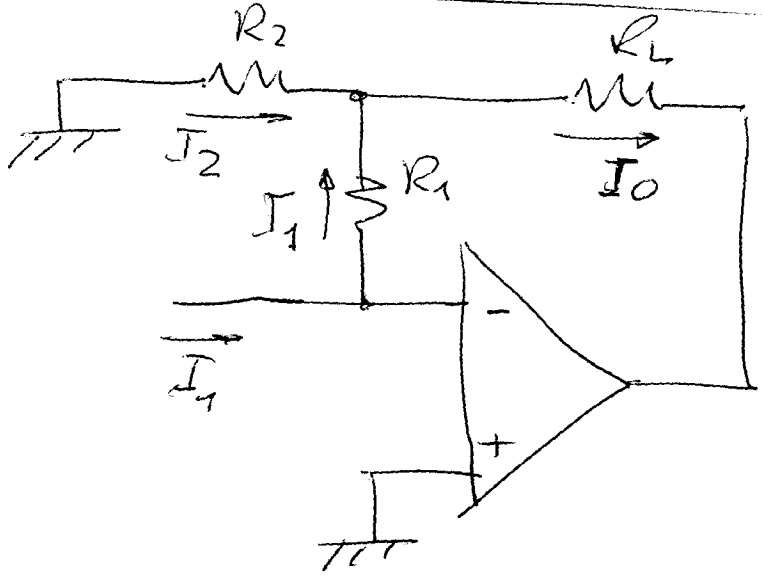
$$V_O = V_{OA} + V_{OB} =$$

$$V_O = \frac{R_2 + R_4}{R_2} \cdot \frac{R_3}{R_1 + R_3} V_1 - \frac{R_4}{R_2} V_2$$

Si $R_2 = R_1$ et $R_4 = R_3 = R_f$

$$\boxed{V_O = \frac{R_f}{R_1}(V_1 - V_2)}$$

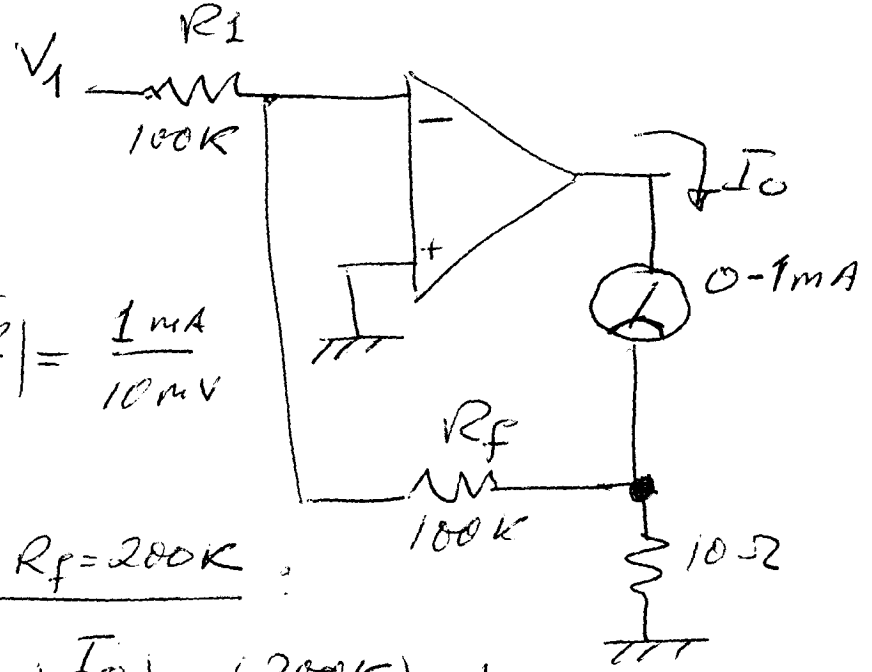
SOURCE DE COURANT CONTRÔLÉE PAR COURANT



$$I_0 = I_1 + I_2 = I_1 + \frac{I_1 R_1}{R_2} = \left(1 + \frac{R_1}{R_2}\right) I_1$$

$$I_0 = K\, I_1$$

EX : MILI-VOLTMETRE



$$\left|\frac{I_0}{V_1}\right| = \frac{1\,mA}{10\,mV}$$

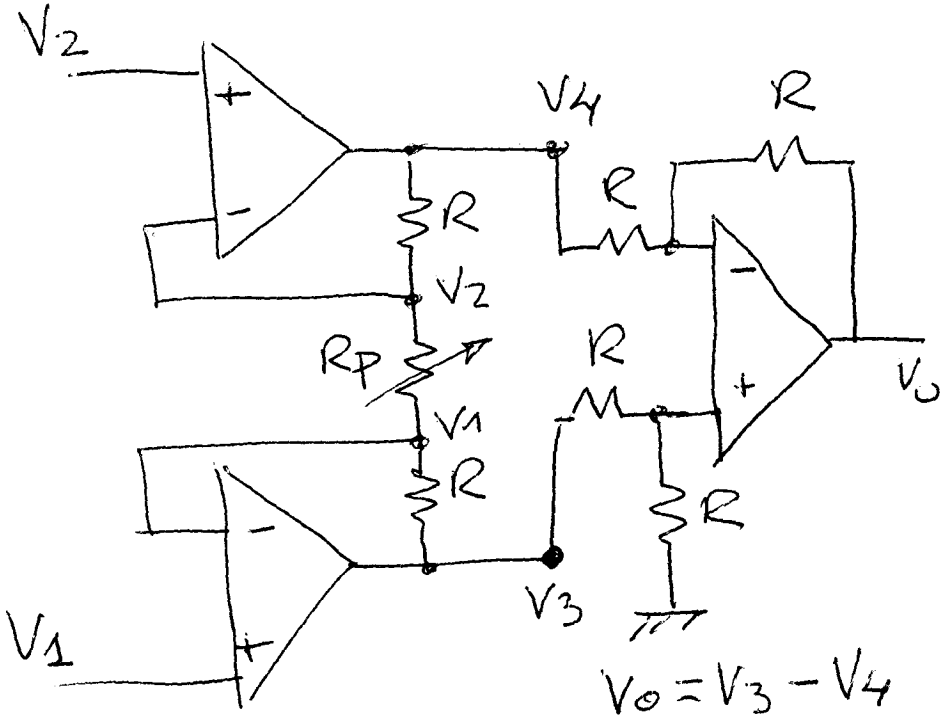
Si $R_f = 200K$:

$$\left|\frac{I_0}{V_1}\right| = \left(\frac{200K}{100K}\right)\frac{1}{10} =$$

$$\left|\frac{I_0}{V_1}\right| = \frac{1\,mA}{5\,mV}$$

L'échelle du lecteur de courant est doublé

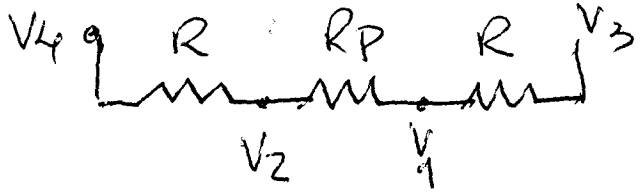
AMPLIFICATEUR D'INSTRUMENTATION



$V_0 = V_3 - V_4$

$$\frac{V_0}{V_1 - V_2} = 1 + \frac{2R}{R_P}$$

$$V_0 = \left(1 + \frac{2R}{R_P}\right)(V_1 - V_2) = K(V_1 - V_2)$$



SLEW RATE

VITESSE DE MONTÉE DU SIGNAL DE SORTIE

Si $V_0 = K \sin(2\pi f t)$

$$\frac{dV_0}{dt} = 2\pi f \cdot K(-\cos(2\pi f t))$$

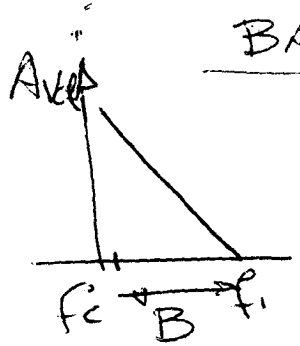
Valeur max $= 2\pi f K$

Donc

$2\pi f K \leq SR$

$$\boxed{f \leq \frac{SR}{2\pi K}}$$

BANDE PASSANTE



$$f_1 = \frac{Avd}{fc}$$

Ex: 10.18 et 10.20