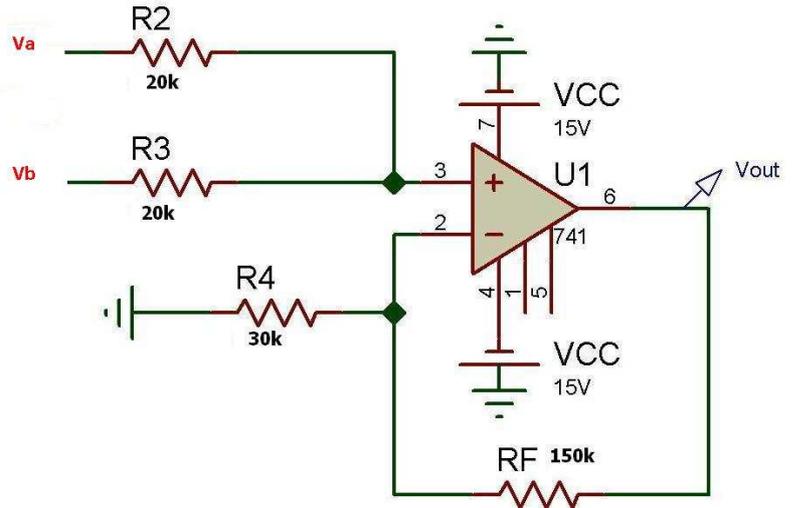


SOLUZIONE

1. Sommatore non invertente

Con questi valori,

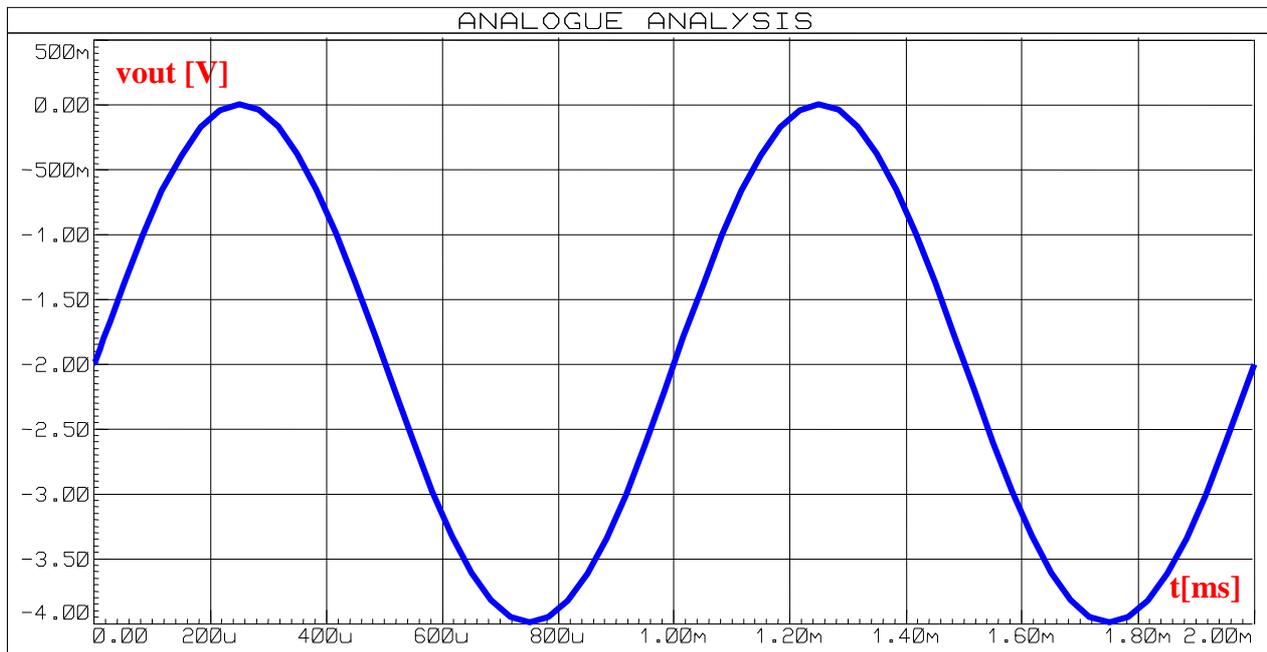
$$\begin{aligned} v_{out} &= (v_a + v_b) * \frac{1}{2} * (1 + 150/30) = \\ &= 3 (v_a + v_b) \end{aligned}$$



2. a) Ampli differenziale

$$\begin{aligned} \text{b) } v_{out}(t) &= v_A(t) * \frac{10}{50} * (1 + \frac{40}{10}) + v_B * (-4) = \\ &= 2 \sin(2\pi 1000 t) - 2 \text{ [V]} \end{aligned}$$

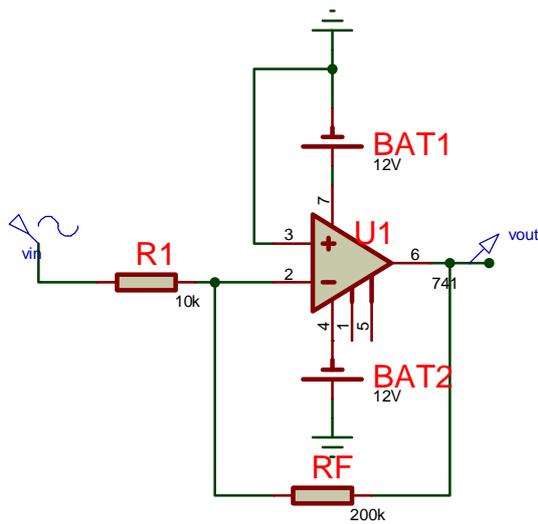
c)



d) R uguali a coppie es : $R_1 = R_3 = 10 \text{ K}$
 $R_2 = R_4 = 50 \text{ K}$

3. Amplificatore invertente di tensione

a)



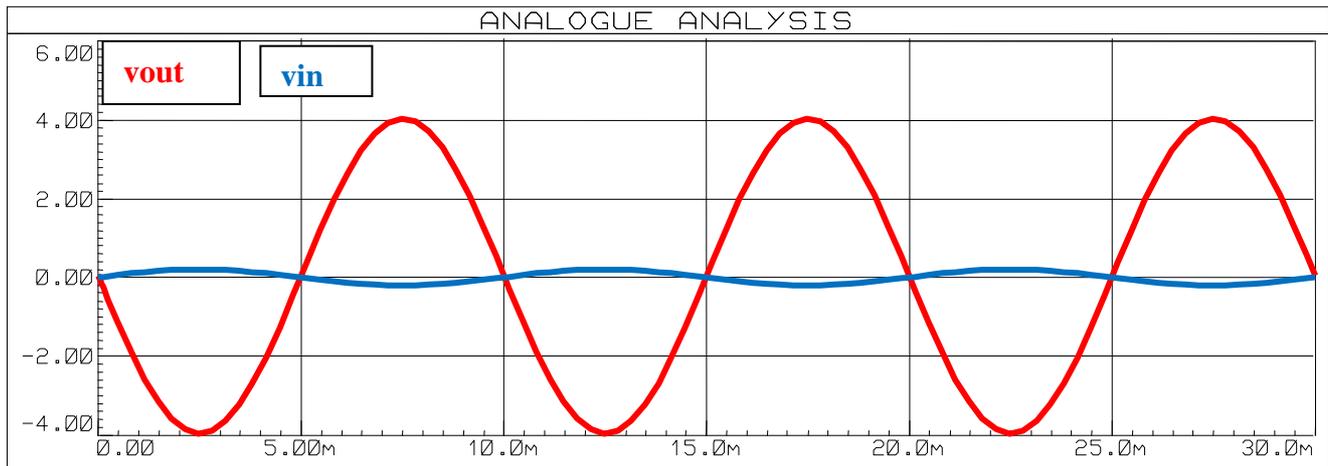
b) $|A_f| = 26 \text{ dB} \implies R_f / R_1 = 20$

es : $R_1 = 10 \text{ K}$ $R_f = 200 \text{ K}$

c) $v_{in}(t) = 200 \sin(2\pi 100t) \text{ [mV]}$

$v_{out}(t) = -4 \sin(2\pi 100t) \text{ [V]}$

d)

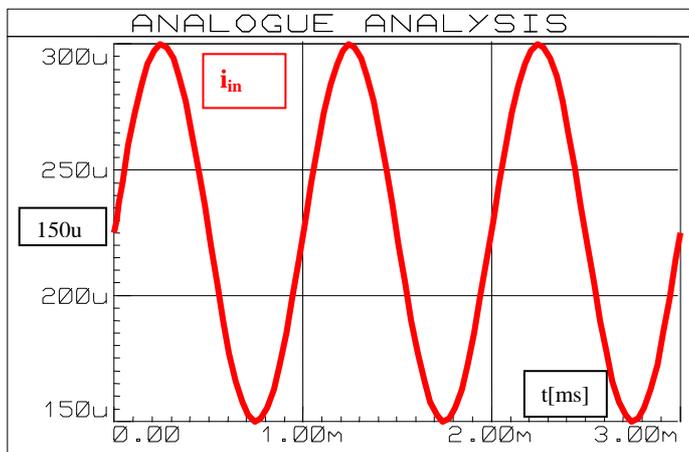
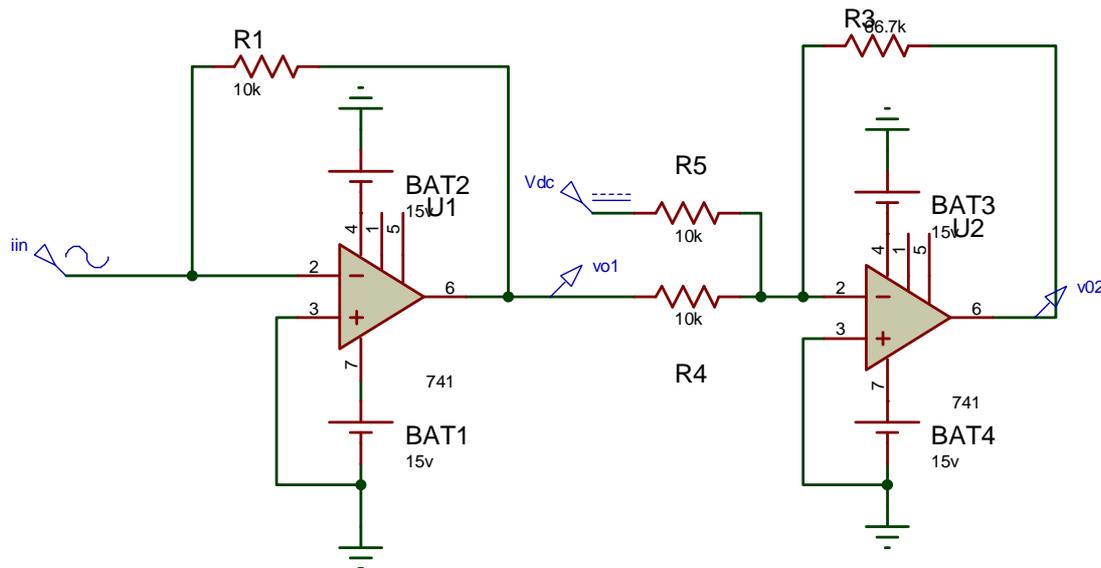


4. Decibel

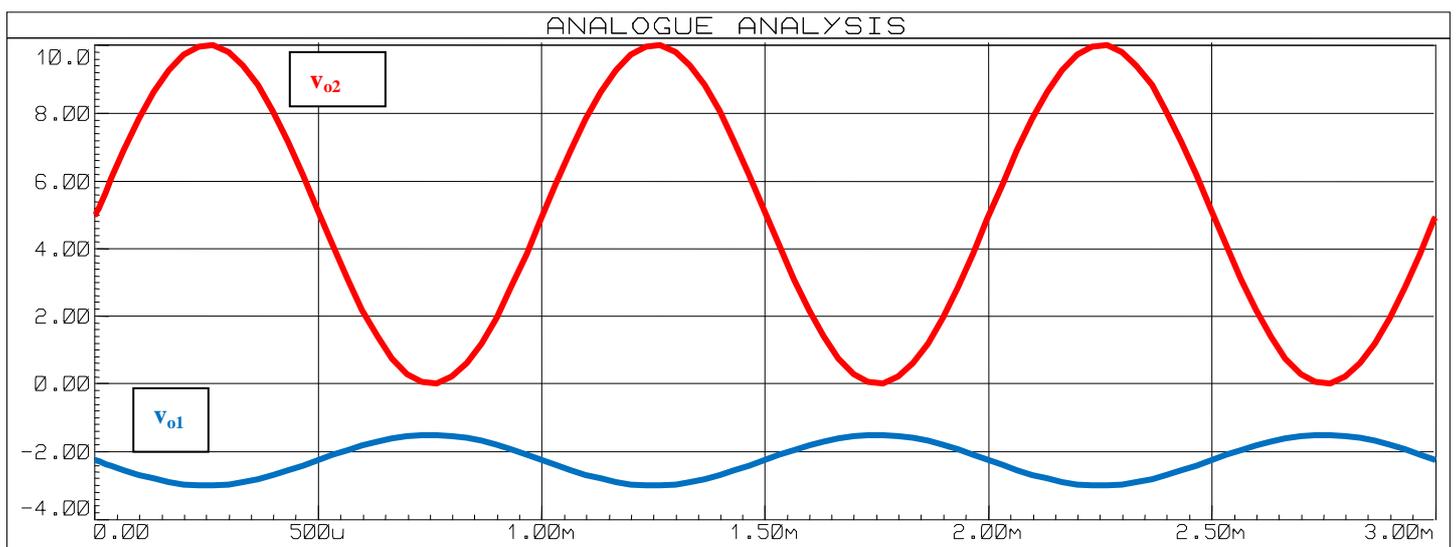
Rapporti di tensione	Valori in dB
1	0
0,1	-20
2	6
500	54

Rapporti di tensione	Valori in dB
100	40
200	46
0,02	- 34
8	18

5. a) circuito di condizionamento a due stadi invertenti



$$i_{in} = 75\sin(2\pi 1000t) + 225 \text{ [uA]}$$



$$v_{01}(t) = -0,75 \sin(2\pi 1000t) - 2,25 \text{ [V]}$$

$$V_{dc} = 1,5 \text{ [V]}$$

$$v_{02}(t) = 5 \sin(2\pi 1000t) + 5 \text{ [V]}$$