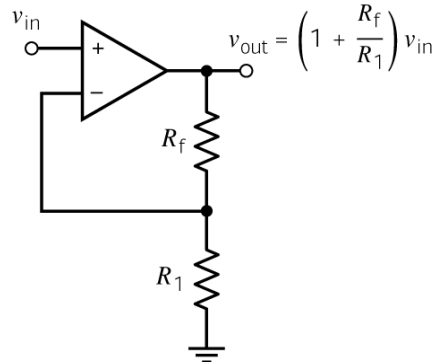
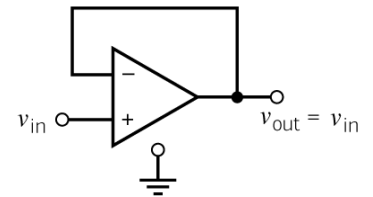


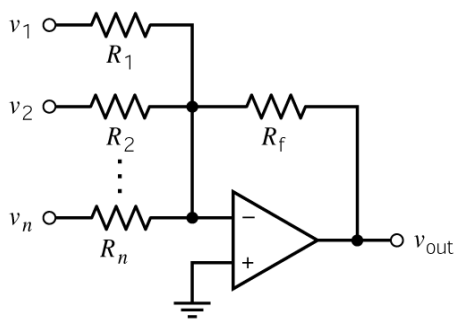
(a) Inverting amplifier



(b) Noninverting amplifier

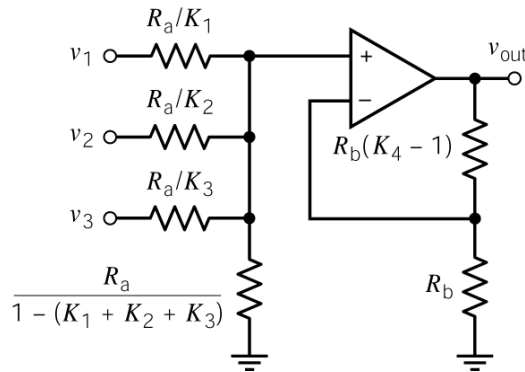


(c) Voltage follower (buffer amplifier)



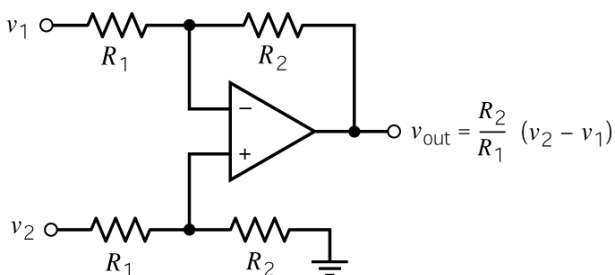
$$v_{out} = -\left(\frac{R_f}{R_1} v_1 + \frac{R_f}{R_2} v_2 + \dots + \frac{R_f}{R_n} v_n\right)$$

(d) Summing amplifier

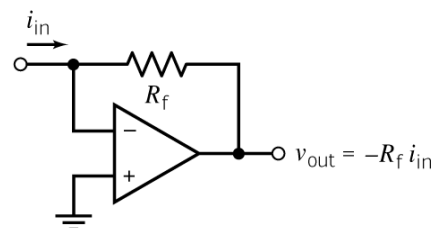


$$v_{out} = K_4(K_1 v_1 + K_2 v_2 + K_3 v_3)$$

(e) Noninverting summing amplifier



(f) Difference amplifier



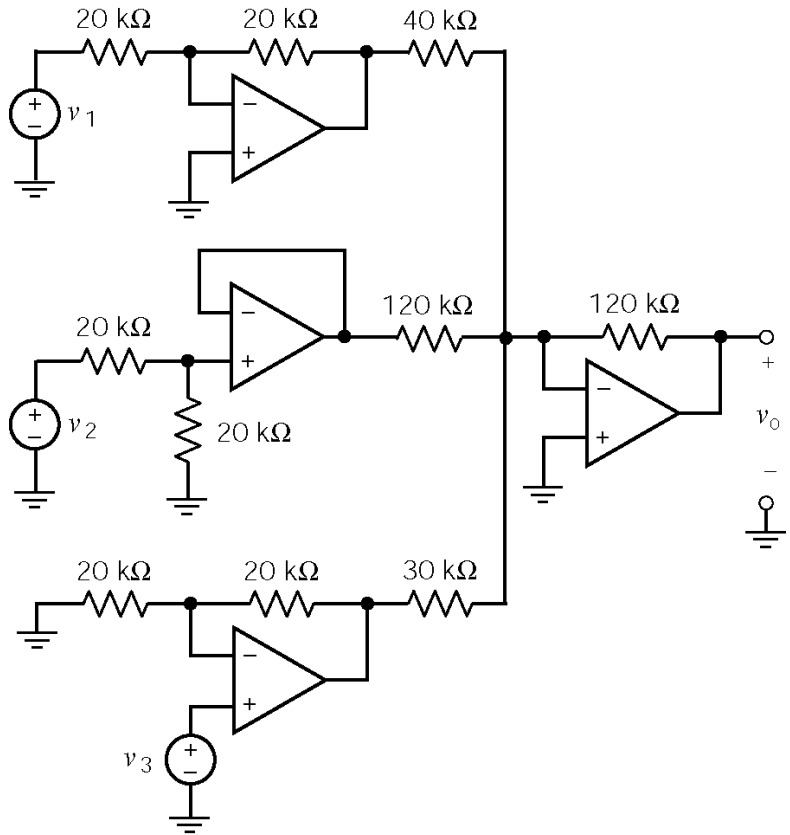
(g) Current-to-voltage converter

1. This circuit has three inputs: v_1 , v_2 and v_3 . The output of the circuit is v_o . The output is related to the inputs by

$$v_o = a v_1 + b v_2 + c v_3$$

where a , b and c are constants.

Determine the values of a , b and c .



2. This circuit has two inputs: v_1 and v_2 . The output of the circuit is v_o . The output is related to the inputs by

$$v_o = a v_1 + b v_2$$

where a and b are constants.

Determine the values of a and b .

