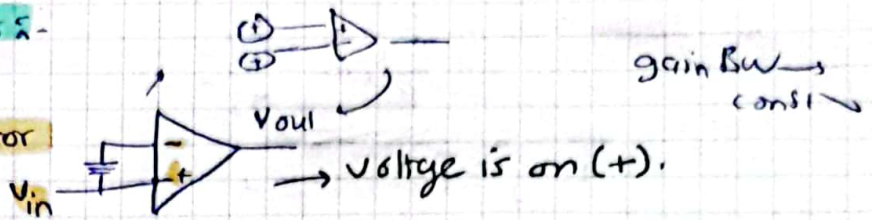


* Amplifiers:- OP Amps:-

1 Voltage Comparator

$$V_{out} = V_{cc} \text{ sign}(V_{in})$$

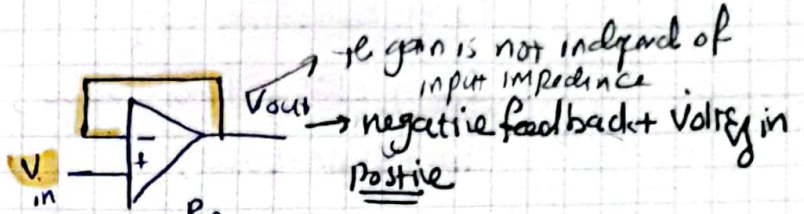


voltage is on (+)

2 Voltage Follower (Buffer)

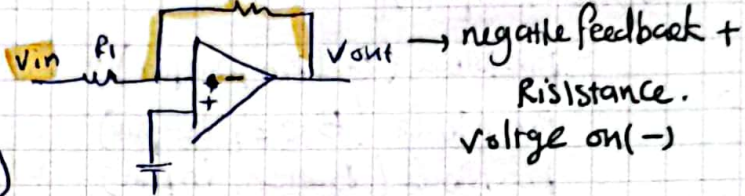
$$\text{gain} = 1 + \left(\frac{R_2}{R_1}\right)$$

$$V_{out} = V_{in}$$



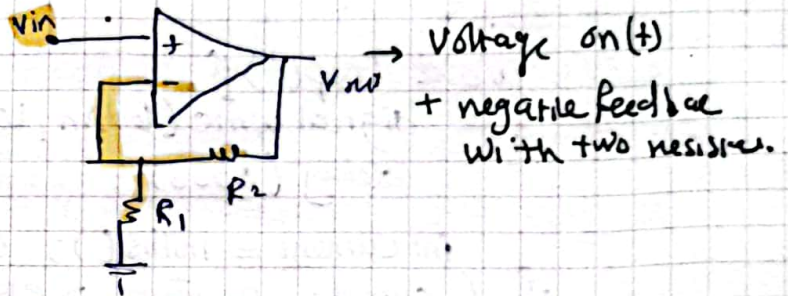
3 Inverting Amplifier

$$V_{out} = -\frac{R_2}{R_1} (V_{in})$$



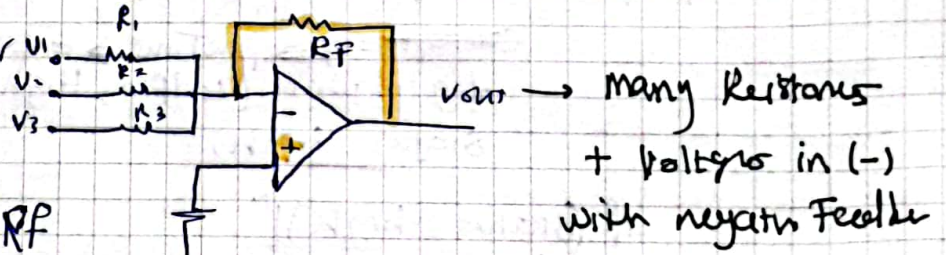
4 non-Inverting Amplifiers

$$V_{out} = \left(\frac{R_2 + 1}{R_1}\right) V_{in}$$



5 Summing Amplifier

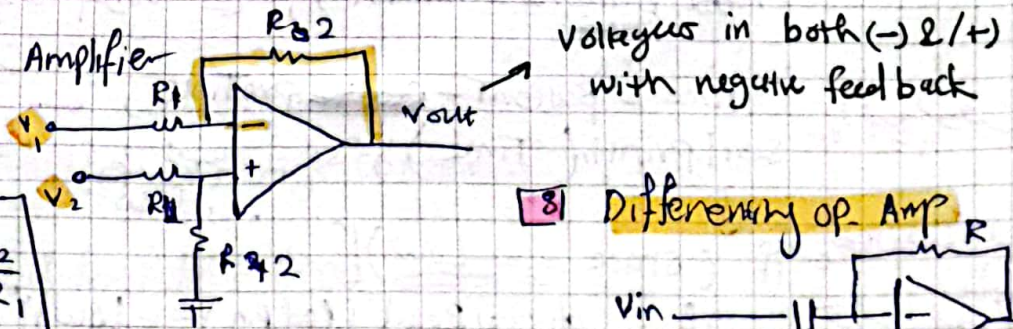
$$V_{out} = -\left[\frac{V_1}{R_1} + \frac{V_2}{R_2} + \dots\right] R_F$$



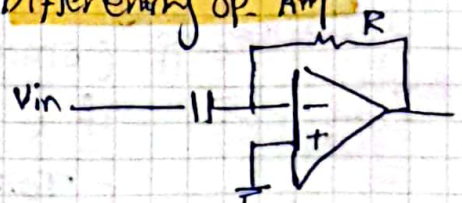
6 differential Amplifier

$$R_1 = R_1, R_2 = R_2$$

$$V_{out} = \left[\frac{(V_2 - V_1) R_2}{R_1}\right]$$



8 Differentiating op. Amp



$$V_{out} = -R C \omega V_{in}$$

$$= R C \frac{dV_{in}}{dt}$$

7 Integrating op-Amp

$$V_{out} = \frac{-1}{j\omega R C} V_{in}$$

