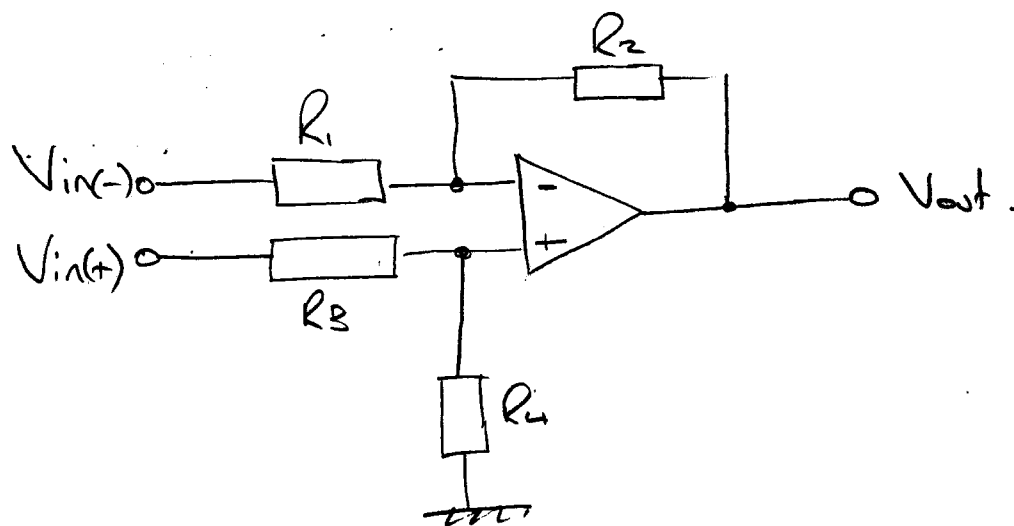


Difference Amplifier - The "other" gain!



$$V_{out} = \frac{V_{in(+)} \cdot R_4 (R_1 + R_2) - V_{in(-)} \cdot R_2 (R_3 + R_4)}{R_1 (R_3 + R_4)}$$

If $V_{in(+)} = -V_{in(-)} = V_{in}$.

$$V_{out} = \frac{V_{in} \cdot R_4 \cdot (R_1 + R_2) + V_{in} \cdot R_2 \cdot (R_3 + R_4)}{R_1 \cdot (R_3 + R_4)}$$

$$\frac{V_{out}}{V_{in}} = \frac{R_4 \cdot (R_1 + R_2) + R_2 \cdot (R_3 + R_4)}{R_1 \cdot (R_3 + R_4)}$$

$$= \frac{R_4 (R_1 + R_2)}{R_1 (R_3 + R_4)} + \frac{R_2 (R_3 + R_4)}{R_1 (R_3 + R_4)}$$

$$\frac{V_{out}}{V_{in}} = \frac{R_4 (R_1 + R_2)}{R_1 (R_3 + R_4)} + \frac{R_2}{R_1}$$

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