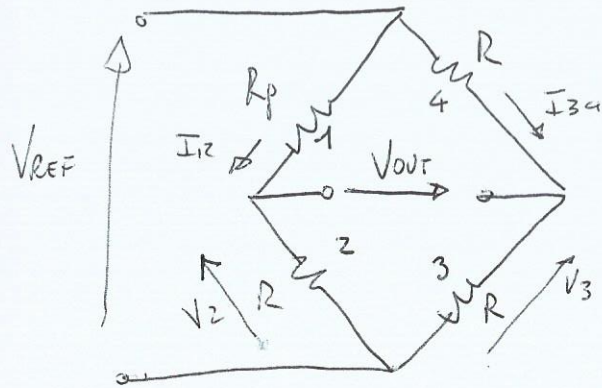


PONTE DI WHEATSTONE



$$I_{12} = \frac{V_{REF}}{R + R_g}$$

$$I_{34} = \frac{V_{REF}}{R + R}$$

$$V_{OUT} = V_3 - V_2$$

$$= R \frac{V_{REF}}{2R} - R \frac{V_{REF}}{R + R_g}$$

$$V_{OUT} = V_{REF} \left(\frac{R}{2R} - \frac{R}{R + R_g} \right)$$

$$\text{se } R_g = R + \Delta R$$

$$V_{OUT} = V_{REF} \left(\frac{R}{2R} - \frac{R}{R + R + \Delta R} \right)$$

$$= V_{REF} \left(\frac{1}{2} - \frac{R}{2R + \Delta R} \right) = V_{REF} \left(\frac{2R + \Delta R - 2R}{4R + 2\Delta R} \right)$$

$$= V_{REF} \frac{\frac{\Delta R}{R}}{4 + 2 \frac{\Delta R}{R}}$$

$$\text{poiché } \frac{\Delta R}{R} \ll 1$$

$$V_{OUT} \approx V_{REF} \cdot \frac{1}{4} \frac{\Delta R}{R}$$