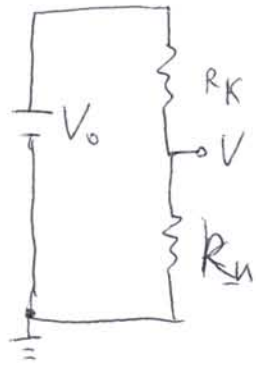
Resistor sorter error analysis:

$$V = V_0 \frac{R_u}{R_u + R_K} \qquad V R_u + V R_K = V_0 R_u$$

$$(V_0 - V) R_u = V R_K$$



$$R_u = \frac{V}{V_0 - V} R_K$$

$$dR_u = R_K \frac{d}{dV}\left(\frac{V}{V_0 - V}\right) = \left[(dV)\frac{1}{V_0 - V} + V(+1)\frac{1}{(V_0 - V)^2}\,dV\right] R_K$$

$$= \frac{R_K\, dV}{(V_0 - V)^2}(V + V_0 - V) = \frac{R_K V_0}{(V_0 - V)^2}\,dV$$

$$\frac{dR_u}{R_u} = \frac{V_0 R_K}{(V_0 - V)^2} \cdot \frac{V_0 - V}{V R_K}\,dV = \frac{V_0\, dV}{V(V_0 - V)} = \frac{dV}{V}\left(\frac{V_0}{V_0 - V}\right) = \frac{dV}{V}\left(\frac{V_0}{V_0\left(1 - \frac{R_u}{R_u + R_K}\right)}\right)$$

$$= \frac{dV}{V}\left(\frac{R_u + R_K}{R_K}\right) = dV\,\frac{(R_u + R_K)^2}{V_0 R_K R_u}$$

$$RE = \frac{dR_u}{R_u} = \frac{(R_u + R_K)^2}{R_u R_K}\left(\frac{dV}{V_0}\right) \qquad \frac{dV}{V_0} = \frac{1}{1024}$$

$$RE = \frac{1}{1024}\,\frac{4 R_{alg}^2}{R_{geo}^2}$$

$$R_{alg} = (R_u + R_K)/2$$

$$R_{geo} = \sqrt{R_u \cdot R_K}$$