

- (b) It is suggested that there is a linear relationship between the current, I , through the wire and its length, l , and that they vary according to the expression:

$$\frac{1}{I} = \frac{\rho l}{EA} + \frac{r}{E}$$

Where

A = Cross sectional area of the wire

ρ = Resistivity of the wire

r = Internal resistance of the cell

A graph of $\frac{1}{I}$ against l should give a straight line with a positive intercept on the y axis.

Take a suitable set of results to confirm this relationship, and record these results clearly in a table below. Remember to include a column for $\frac{1}{I}$. [5]

Repeat readings are not needed for this experiment

Clear table with headings [l , I , $\frac{1}{I}$ or in words] (1)

Units correct for all readings [m/cm , A , A^{-1}] (1)

Full length of wire used (1)

At least 5 readings taken (1)

$\frac{1}{I}$ s.f. same as I s.f. in all cases (1)