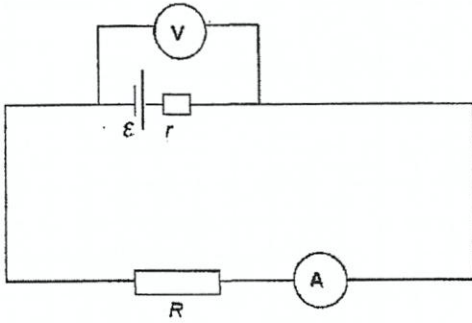


A circuit was constructed as shown in the diagram below:



The reference table formula is:

$$\epsilon = I(R+r) \quad \text{where } \epsilon = \text{emf}$$

1. Starting with the equation above, show that:

$$V = \epsilon - Ir$$

The value of the external resistor R was varied, and both the terminal voltage and the current were measured.

DATA

Terminal Voltage (volts)	Current (amps)
5.624	1.12
6.545	0.82
7.199	0.60
7.578	0.47
7.826	0.39

ANALYSIS

2. Graph Terminal Voltage versus Current (current must be on the X-axis.)
3. Calculate the slope of the graph. *Show your work including the equation, and substitution with units.*
4. The equation of the graphed line is given by $V = \epsilon - Ir$. What does the slope of this graph represent?
5. What is the value of the Y-intercept on your graph? What does the Y-intercept represent?

