

Thursday Reading Assessment: Unit 2, Resistance and Ohm's Law

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March 5, 2020

1 Memory Bank

- $I = \frac{\Delta Q}{\Delta t}$... Definition of current.
- $\Delta V = IR_{\text{tot}}$... Ohm's Law (one version).

2 Current

1. Think of current as the slope of charge versus time. Consider Fig. 1. (a) Indicate on the graph where the current is maximal, and indicate on the graph where the current is approaching a constant. (b) If $\tau = 3$ ms, and $Q_M = 1$ nC, compute the average current.

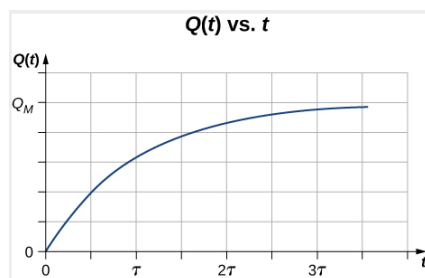


Figure 1: A graph of charge passing through a certain circuit versus time.

3 Ohm's Law

1. Suppose a student collects the data shown in Fig. 2, in which current is plotted on the x-axis, and voltage is plotted on the y-axis. Deduce the total resistance in the circuit.

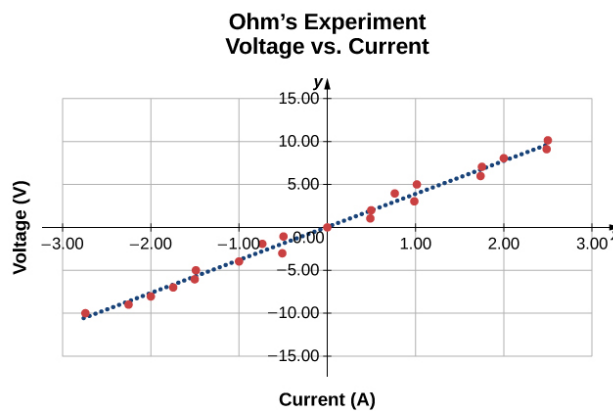


Figure 2: A graph of voltage across a circuit, versus current drawn by the circuit.