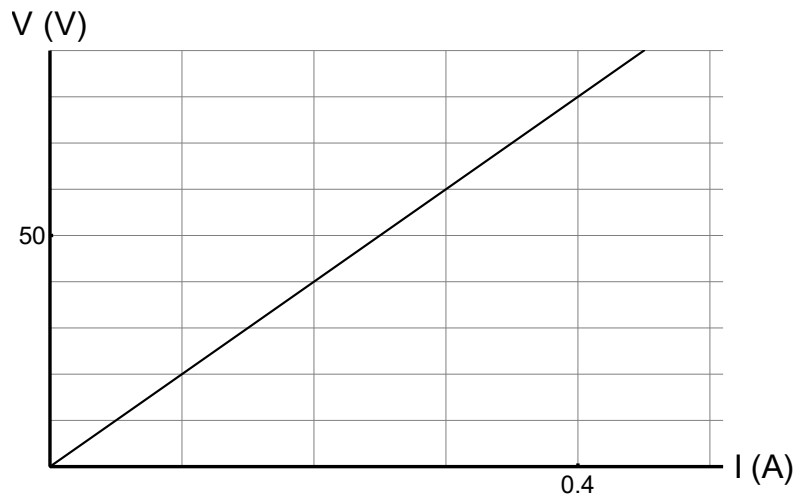


Physics test

date: , class: , student:

- **Exercise 1:** The plates of a parallel-plate capacitor are rectangular, with sides 45 cm and 60 cm long. The charge on the positively charged plate is $Q = 40 \mu\text{C}$. Calculate the magnitude of the electric field inside the capacitor, and the electrostatic force experienced by a charge $q = -8 \mu\text{C}$ immersed in that field. Draw a schematic representation of the system under consideration.
- **Exercise 2:** The graph here below represents the relation between the potential difference supplied by a battery to a circuit and the current that flows in that circuit. Determine the resistance of the circuit.



- **Exercise 3:** A simple DC circuit, composed by a battery and a wire, is powered by a 1.5 V battery, and the current flowing through the wire is equal to 6.0 mA. What is the resistance of the wire? The wire is 25 cm long, and has a round section of radius 0.002 mm. What is the resistivity of the material of which the wire is made? Is this material a good conductor? Explain why.