

Name _____

Date _____



Circuitry I

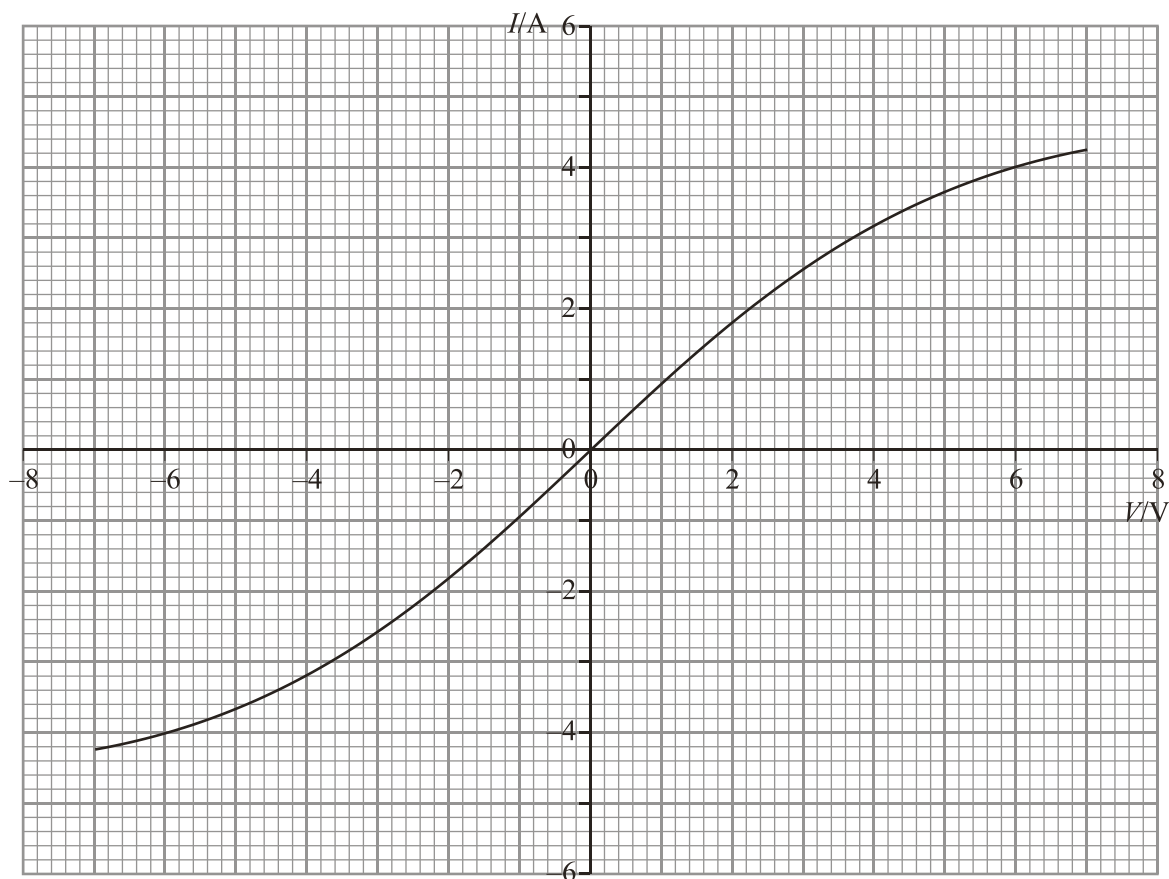
1. A net charge of 51 mC passes through the cross-sectional area of a wire in 14.0 s.
 - A. What is the current in the wire? Give your answer in mA.

 - B. How many electrons pass the cross-sectional area in 1.0 min? (Your answer should be between 1×10^{15} and 1×10^{20} electrons)

2. How much charge passes through a cross-sectional area of a copper wire in 1.0 s if $I = 6.5$ A?

3. How much current is drawn by a Sharp Aquos 37 HDTV if it has a resistance of $73.8 \frac{1}{2}$ and is connected across a potential difference of 120 V?

4. The graph below shows the I-V characteristics for the component X.



The component X is now connected across the terminals of a battery of e.m.f. 6.0 V and negligible internal resistance.

- A. Use the graph to determine

- i. the current in component X

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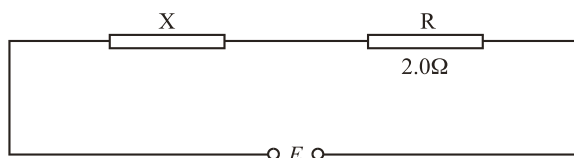
- ii. the resistance in component X

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A resistor R of constant resistance 2.0Ω is now connected in series with component X as shown below.



- B. i. On the graph in (a), draw the I-V characteristics for the resistor R.

- ii. Determine the total potential difference E that must be applied across component X and across resistor R such that the current through X and R is 3.0 A.