

## Current & Voltage

---

1. If 15 C of charge flows by in 30 seconds, what is the current?
2. If a charge of 60 C goes by in 3 minutes, what is the current?
3. There is a current of 4 amps in a wire.
  - a. How many Coulombs of charge flow through each second?
  - b. How many Coulombs of charge flow through each minute?
4. How long will it take a current of 5 A to move 100 C of charge?
5. If  $2 \times 10^{20}$  electrons flow by in 45 seconds, what is the current?
6. There is a current of 0.3 A in a resistor.
  - a. How much charge will pass through in 5 minutes?
  - b. How many electrons is that?
7. A power supply is set for 2.5 V and is connected to a light bulb.
  - a. How much energy would 3 C of charge get to go through the light bulb?
  - b. How much energy would 15 C of charge get to go through the light bulb?
8. 150 C of charge flows through a resistor and “loses” 450 J of energy.
  - a. What is the voltage across the resistor?
  - b. What happens to the “lost” energy of the charge?
9.  $15 \times 10^{20}$  electrons pass through a resistor in 1 minute and “lose” a total of 400 J of energy. What is the current and voltage of the resistor?

Answers: 1) 0.5 A 2) 0.33 A 3. a) 4 C b) 240 C 4) 20 s 5) 0.71 A  
6. a) 90 C b)  $5.63 \times 10^{20}$  7. a) 7.5 J b) 37.5 J 8. a) 3 V b) heats up resistor  
9) 4 A & 1.67 V