

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 2×10^{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. 15×10^{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) 5.63×10^{20} 7. a) 7.5 J b) 37.5 J 8. a) 3 V b) heats up resistor
 9) 4 A & 1.67 V