# Electric Circuits: Current, Voltage and Resistance

Electricity · 4 questions · step-by-step answers at the end

Name: Date: Score: / 4

**USEFUL EQUATIONS**

$Q = It$ $V = IR$ $R = R_1 + R_2$

## Questions

Show your working in the space under each question.

**1.** How much charge flows when 0.50 A passes for 2 minutes?

**2.** A 12 V battery is connected to a 4.0 Ω and a 2.0 Ω resistor in series. Find the current and the voltage across each resistor.

**3.** Three 4 Ω resistors are connected in series to a 6 V battery. Find the current.

**4.** What happens to the resistance of an LDR when the lights are switched off?

## Step-by-step answers

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**1.** Q = It = 0.50 × 120 = **60 C**.

**2.** 1. Total resistance = 4.0 + 2.0 = 6.0 Ω.
2. I = V/R = 12/6.0 = **2.0 A** through both.
3. V = IR: 2.0 × 4.0 = **8.0 V** and 2.0 × 2.0 = **4.0 V**. They add to 12 V ✓

**Answer: 2.0 A; 8.0 V and 4.0 V**

**3.** R = 12 Ω, so I = 6/12 = **0.50 A**.

**4.** It **increases**.