

- (2) **1.** Calculate how many electrons flow per second past a fixed point in a wire carrying 10 mA of current. If the current moves from left to right, which way do the electrons move?
- (1) **2.** Calculate the gain in kinetic energy, in J, for an electron moving from a point of voltage 3 V to a point of voltage 5 V.
- (1) **3.** Calculate the resistance of a silver wire, 2.0 m long and of radius 1.0 mm.
- (3) **4.** If a wire has a resistance R , what would be the resistance of a wire, made of the same material, with twice the length and twice the diameter?
- (3) **5.** The same voltage V is applied across each of the two wires of problem 4. Assuming that power dissipated per unit surface area of the wire is the limiting factor, which of the two wires will melt first, as V is increased?
- (4) **6.** Reduce this circuit using only the simple in-series/in-parallel reduction rules. Determine R_{AB} .

