

Physics 230: Problem Set #1

SPRING, 2006

Department of Physics and Astronomy
Sonoma State University

Due Feb. 9, 2006, 1:00 pm (in class)

- Text: Nigel P. Cook, Electronics: A Complete Course, Prentice Hall, 2nd Edition, 2004;
- Please read the following chapters:
 1. Current and Voltage;
 2. Resistance and Power;
 3. Series Circuits;
 4. Parallel Circuits;
 5. Series-Parallel Circuits;

1. What is the total resistance between points A and B in Figure 1?

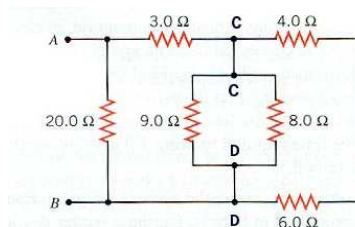


FIG. 1: A series-parallel circuit.

2. Use Kirchoff's rules to find the current flowing in each lamp in Figure 2.

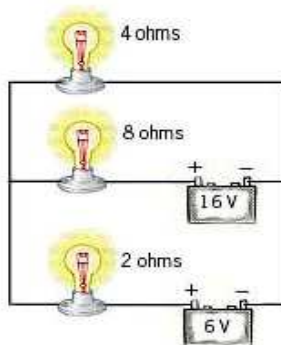


FIG. 2: Three lamps connected to two batteries.

3. In the circuit shown below, the battery cells have negligible internal resistance and the voltmeter has very high resistance ($R = \infty$). What would be the reading of the voltmeter?

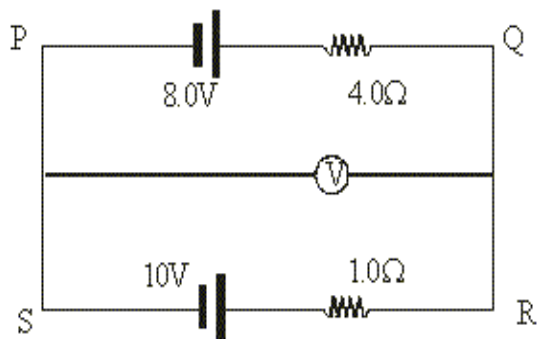


FIG. 3: Reading of the voltmeter.