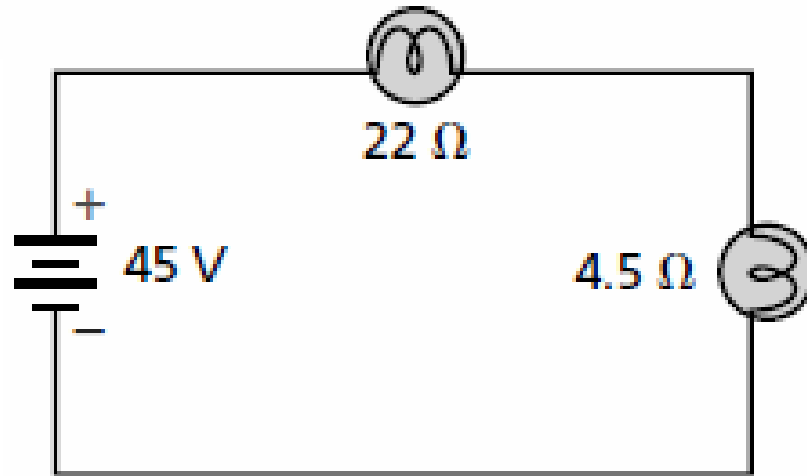


PQ 6 Electricity Circuits

Q

Q1

A $22\text{-}\Omega$ lamp and a $4.5\text{-}\Omega$ lamp are connected in series and placed across a potential difference of 45 V as shown



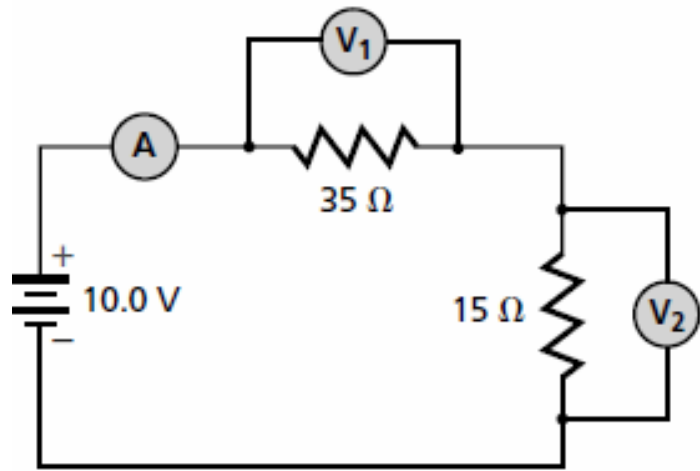
a. What is the equivalent resistance of the circuit?

b. What is the current in the circuit?

c. What is the voltage drop across each lamp?

d. What is the power dissipated in each lamp?

Q2



a. What should the ammeter read?

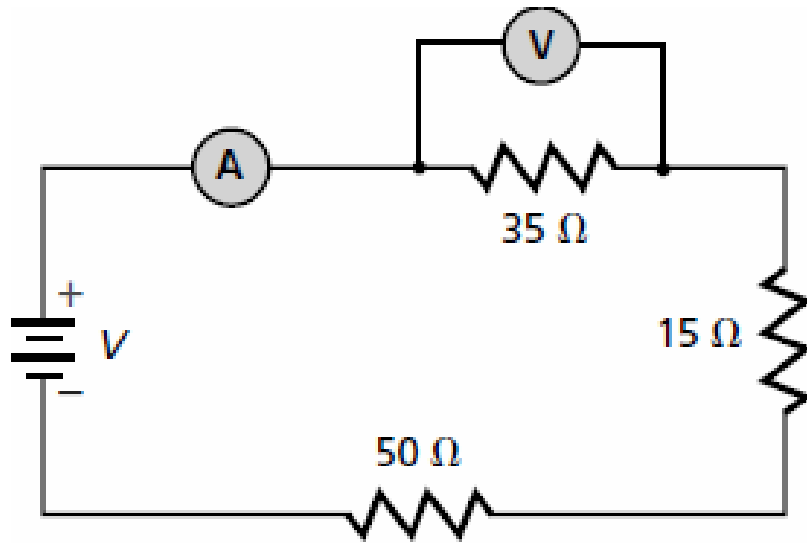
b. What should voltmeter 1 read?

c. What should voltmeter 2 read?

d. How much energy is supplied by the battery per minute?

Q3

- The voltmeter reads 70.0 V.



a. Which resistor is the hottest?

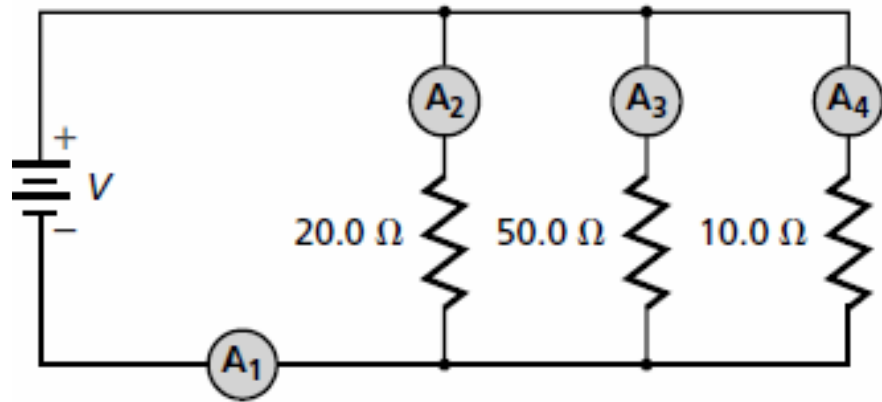
b. Which resistor is the coolest?

c. What will the ammeter read?

d. What is the power supplied by the battery?

Q4

- The battery develops 110 V.



a. Which resistor is the hottest?

b. Which resistor is the coolest?

c. What will ammeter 1 read?

d. What will ammeter 2 read?

e. What will ammeter 3 read?

f. What will ammeter 4 read?

Q6

A $16.0\text{-}\Omega$ and a $20.0\text{-}\Omega$ resistor are connected in parallel. A difference in potential of 40.0 V is applied to the combination.

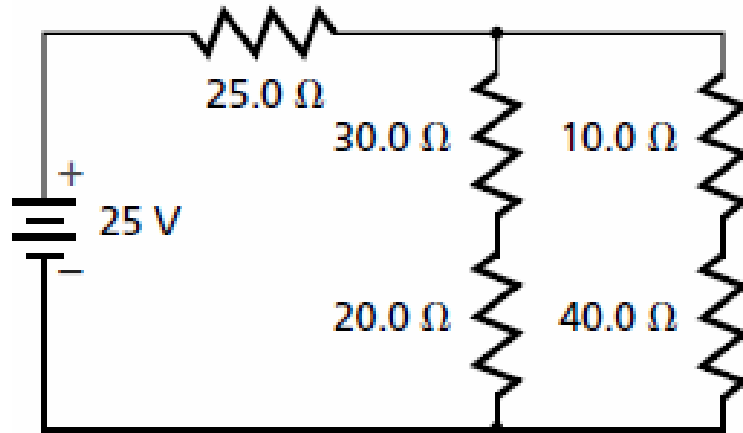
a. Compute the equivalent resistance of the parallel circuit.

b. What is the total current in the circuit?

c. What is the current in the $16.0\text{-}\Omega$ resistor?

Q7

a. Determine the total resistance.



b. Determine the current through the 25-Ω resistor.

c. Which resistor is the hottest? Coolest?

Q8

A circuit contains six 60-W lamps with a resistance of $240\text{-}\Omega$ each and a $10.0\text{-}\Omega$ heater connected in parallel. The voltage across the circuit is 120 V. Find the current in the circuit for the following situations.

a. Four lamps are turned on.

b. All of the lamps are turned on.

c. Six lamps and the heater are operating.