

Chapter

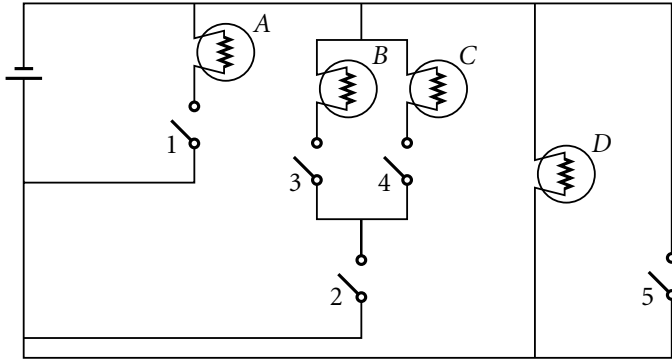
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HOLT PHYSICS

Mixed Review

Circuits and Circuit Elements

1. Consider the circuit shown below.



- a. Do any of the bulbs have a complete circuit when all the switches are open? Which one(s)? \_\_\_\_\_
- b. Do any of the switches cause a short circuit when closed? Which one(s)? \_\_\_\_\_
- c. Which switches should be kept open, and which should be closed for the following to occur?
  - only bulbs A and B are off \_\_\_\_\_
  - only bulbs A and C are off \_\_\_\_\_
  - only bulbs B and C are off \_\_\_\_\_

2. A light bulb of unknown resistance is connected in series with a  $9.0\ \Omega$  resistor to a  $12.0\ \text{V}$  battery. The current in the bulb is  $0.80\ \text{A}$ .

a. In the space below, sketch a schematic diagram of the circuit.

b. Find the equivalent resistance of the circuit.

\_\_\_\_\_

c. Find the resistance of the light bulb.

\_\_\_\_\_

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Chapter **20**

HOLT PHYSICS  
**Mixed Review** *continued*

- 3.** A light bulb of unknown resistance is connected in parallel to a  $48.0\ \Omega$  resistor and to a  $12.0\ \text{V}$  battery. The current through the battery is  $2.50\ \text{A}$ .

**a.** In the space below, sketch a schematic diagram of the circuit.

**b.** Find the potential difference across the resistor and across the bulb.

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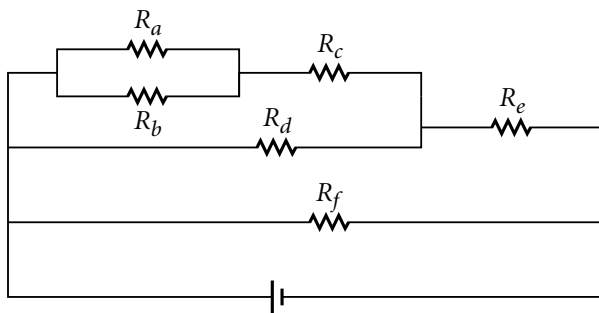
**c.** Find the current in the resistor and in the bulb.

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**d.** Find the resistance of the light bulb.

\_\_\_\_\_

- 4.** In the circuit below, find the equivalent resistance for the following situations.



**a.**  $R_a = R_b = R_c = R_d = R_e = R_f = 10.0\ \Omega$

\_\_\_\_\_

**b.**  $R_a = 10.0\ \Omega$ ;  $R_b = 20.0\ \Omega$ ;  $R_c = 30.0\ \Omega$ ;  $R_d = 40.0\ \Omega$ ;  $R_e = 50.0\ \Omega$ ;  $R_f = 60.0\ \Omega$

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