39. A current of 1.50×10^{-2} A flows through a 30.0 Ω resistor. What is the voltage drop across the resistor?

40. A 1.50 V cell is connected to a 1.50 Ω light bulb in a simple circuit. How much current flows through the bulb?

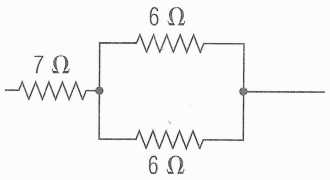
41. A 12.0 V battery produces a current of 1.00 mA when connected in a circuit to resistor R. What is R's resistance?

42. A 55.0 W bulb is connected in a circuit to a voltage source of $V_{max} = 110.$ V.
- **a.** What current does it draw?
- **b.** What is its resistance?

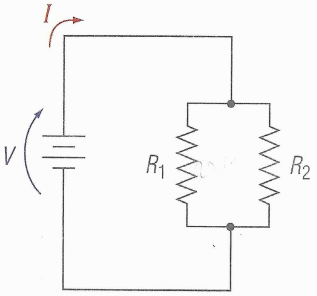
43. A 40.0 Ω resistor in a circuit draws a current of 0.100 A.
- **a.** What is the voltage drop across the resistor?
- **b.** How much electrical power does it absorb?

44. Find the resistance of two 1.50×10^3 Ω resistors
- **a.** in series.
- **b.** in parallel.

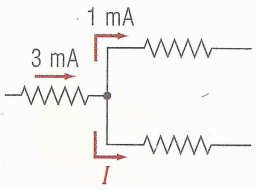
45. Find the resistance of the circuit segment shown below.



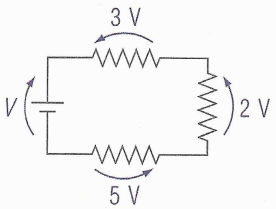
46. In the figure below, $R_1 = R_2 = 20.0$ Ω and $V = 10.0$ V. Find I.



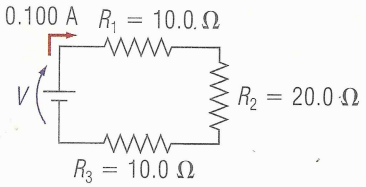
47. What is I in the figure below?



48. What is V in the figure below?

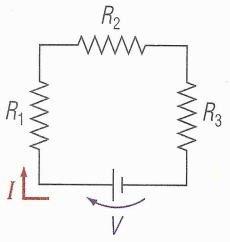


49. **a.** Find the equivalent resistance of the circuit below.



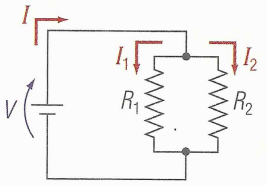
- **b.** Find the voltage drop across R_1.
- **c.** Find the voltage drop across R_2.
- **d.** Find the voltage drop across R_3.
- **e.** What is V?

50. The voltage drop across R_1 is 2.00 V. $R_1 = 20.0$ Ω; $R_2 = 30.0$ Ω; $V = 6.00$ V.



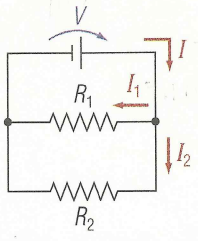
- **a.** What is the current through R_1?
- **b.** What is the current through R_3?
- **c.** What is the voltage drop across R_2?
- **d.** What is the total voltage drop in the circuit external to the voltage source?
- **e.** What is the voltage drop across R_3?
- **f.** What is R_3?

51. $V = 6.00$ V; $R_1 = 30.0$ Ω; $R_2 = 60.0$ Ω.



- **a.** Find the equivalent resistance of the circuit.
- **b.** Find the total current I through the circuit.
- **c.** What is the voltage drop across R_1?
- **d.** What is the voltage drop across R_2?
- **e.** What is the current through R_1?
- **f.** What is the current through R_2?

52. $V = 10.0$ V; $I_1 = 0.100$ A; $I_2 = 0.0500$ A.



a. What is the voltage drop across R_1?
b. What is the voltage drop across R_2?
c. Calculate R_1.
d. Calculate R_2.
e. Calculate the circuit's equivalent resistance.
f. Calculate the current through the voltage source.
g. Compare R_1/R_2 with I_1/I_2.

53. The resistor bridge in the figure below contains fixed resistors $R_1 = 10.0\ \Omega$, $R_2 = 100.0\ \Omega$, variable resistor R_3, and unknown resistance R_x. Find R_x when the galvanometer (G) reads 0 A, and $R_3 = 50.0\ \Omega$.