

Parallel Circuits Practice

Circle Answers with units. Show all Work.

Remember, for resistors in parallel:

The current drops across each resistor (current is shared in the circuit.)

The sum of the voltage equals the voltage of the battery.

The voltage is the same at all points in the circuit.

The sum of the resistance is found by: $1/R_p = 1/R_1 + 1/R_2 + 1/R_3$

1. A 45 Ω resistor and a 15 Ω motor are connected in parallel with a switch to a 50 V battery.
 - a. Draw the schematic diagram of this circuit.
 - b. What is the total resistance of the circuit?
 - c. What is the current through each resistor?
 - d. What is the voltage in the circuit?
 - e. How much power is used by each resistor?
 - f. How much power is used by the entire circuit?

2. A 25 Ω resistor, a 13 Ω lamp, and a 20 Ω motor are connected in parallel to a 65 V battery.
 - a. Draw the schematic diagram of this circuit.
 - b. What is the total resistance of the circuit?
 - c. What is the current through each resistor?
 - d. What is the voltage in the circuit?
 - e. How much power is used by each resistor?
 - f. How much power is used by the entire circuit?

3. **Three** 30 Ω resistors and a 24 Ω lamp are connected in parallel with a switch to a 150 V generator.
 - a. Draw the schematic diagram of this circuit.
 - b. What is the total resistance of the circuit?
 - c. What is the current through each resistor?
 - d. What is the voltage in the circuit?
 - e. How much power is used by each resistor?
 - f. How much power is used by the entire circuit?

4. A 15 Ω resistor, a 20 Ω resistor, and a 10 Ω lamp are connected in parallel with a switch to a 86 V battery.
 - a. Draw the schematic diagram of this circuit.
 - b. What is the total resistance of the circuit?
 - c. What is the current through each resistor?
 - d. What is the voltage in the circuit?
 - e. How much power is used by each resistor?
 - f. How much power is used by the entire circuit?

5. Compare and contrast calculations in series vs in parallel by completing the following table.
In each box write the equation and explain how to calculate verbally.

	V	I	R	P
Series				
Parallel				