

1. What is common to resistors that are connected in series- current or voltage?
2. What is common to resistors that are connected in parallel- current or voltage?
3. What happens to the **overall resistance** as more bulbs are added to a circuit **in series**?
4. What happens to the **overall resistance** as more bulbs are added to a circuit **in parallel**?
5. What happens to the **overall current** in a circuit as more bulbs are added to a circuit **in series**?
6. What happens to the **overall current** in a circuit as more bulbs are added to a circuit **in parallel**?
7. When two resistors with different resistances are connected in series to a battery, which resistance has the higher voltage drop across it- the one with the higher resistance, or the one with the lower resistance?
8. When two resistors with different resistances are connected in parallel to a battery, which resistance has the higher current through it- the one with the higher resistance, or the one with the lower resistance?
9. What happens to the batteries output energy as more and more resistors are added in parallel, as in a house? (does it increase or decrease?)

Write True or False in the space provided.

10) In order to make a flashlight bulb light up, all you need to do is to run a wire from the positive terminal of a flashlight battery to the center of the bulb's base. _____

11) When light bulbs are connected in series, all carry the same current regardless of their resistances. _____

12) In a series circuit, the total voltage drop across a series of resistors is the sum of voltage drops across each individual resistor. _____

13) In a parallel circuit, current in each branch is the same. _____

14) A schematic diagram is a simplified, blocked-out picture of a circuit in which parts of the circuit are represented by symbols. _____

15) When resistors are arranged in parallel, their overall resistance is less than that of the smallest resistor. _____

16) In order to prevent overloading in a circuit, fuses are inserted in the circuit. _____

17) A fuse or circuit breaker used in a circuit is usually inserted in parallel. _____

18) A 20-V potential difference is applied across a parallel combination of a 60-ohm and a 30-ohm resistor. What is the current in the 30-ohm resistor?

19) What number of 6-ohm resistors must be connected in parallel to create an equivalent resistance of 1 ohm?

20) Two identical resistors in parallel have an equivalent resistance of 5 ohms. If the same resistors were instead connected in series, what would be the equivalent resistance?

22) Draw a schematic diagram of a 4-ohm resistor in series with a 18-V battery and also with a 3-ohm resistor and a 6-ohm resistor connected in parallel. What is the equivalent resistance? What is the current through and voltage across each?