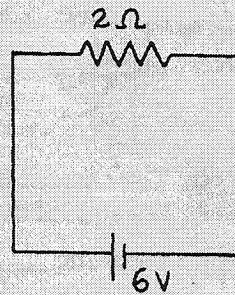


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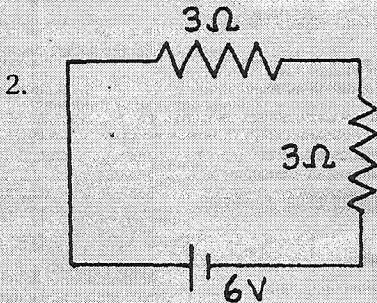
# CONCEPTUAL Physics PRACTICE PAGE

## Chapter 22 Electric Current Series Circuits

1. In the circuit shown at the right, a voltage of 6 V pushes charge through a single resistor of  $2\ \Omega$ . According to Ohm's law, the current in the resistor (and therefore in the whole circuit) is \_\_\_\_\_ A.



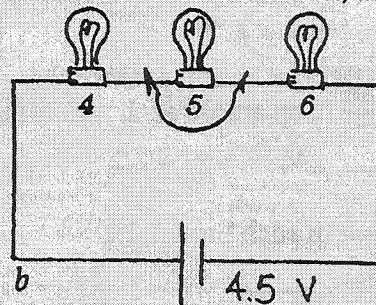
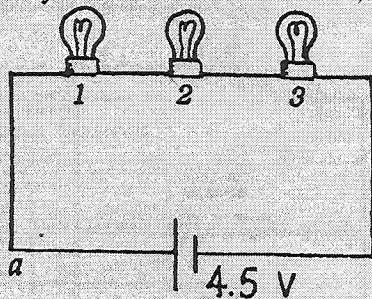
THE EQUIVALENT RESISTANCE OF RESISTORS IN SERIES IS SIMPLY THEIR SUM!



- If a second identical lamp is added, as on the left, the 6-V battery must push charge through a total resistance of \_\_\_\_\_  $\Omega$ . The current in the circuit is then \_\_\_\_\_ A.

3. The equivalent resistance of three  $4\text{-}\Omega$  resistors in series is \_\_\_\_\_  $\Omega$ .
4. Does current flow *through* a resistor, or *across* a resistor? \_\_\_\_\_  
Is voltage established *through* a resistor, or *across* a resistor? \_\_\_\_\_
5. Does current in the lamps occur simultaneously, or does charge flow first through one lamp, then the other, and finally the last in turn?

6. Circuits *a* and *b* below are identical with all bulbs rated at equal wattage (therefore equal resistance). The only difference between the circuits is that Bulb 5 has a short circuit, as shown.



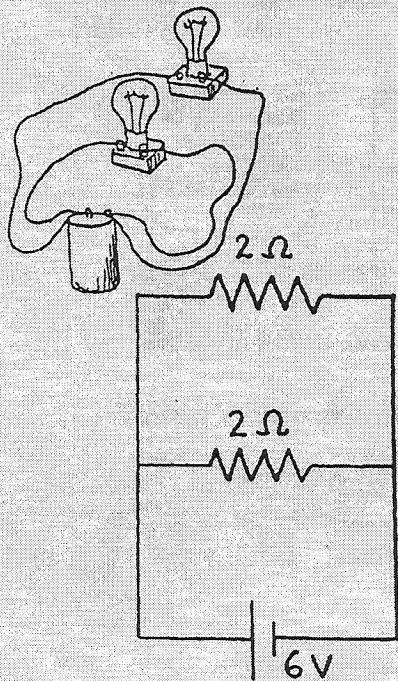
- In which circuit is the current greater? \_\_\_\_\_
- In which circuit are all three bulbs equally bright? \_\_\_\_\_
- What bulbs are the brightest? \_\_\_\_\_
- What bulb is the dimmest? \_\_\_\_\_
- What bulbs have the largest voltage drops across them? \_\_\_\_\_
- Which circuit dissipates more power? \_\_\_\_\_
- What circuit produces more light? \_\_\_\_\_

WS 1



Parallel Circuits

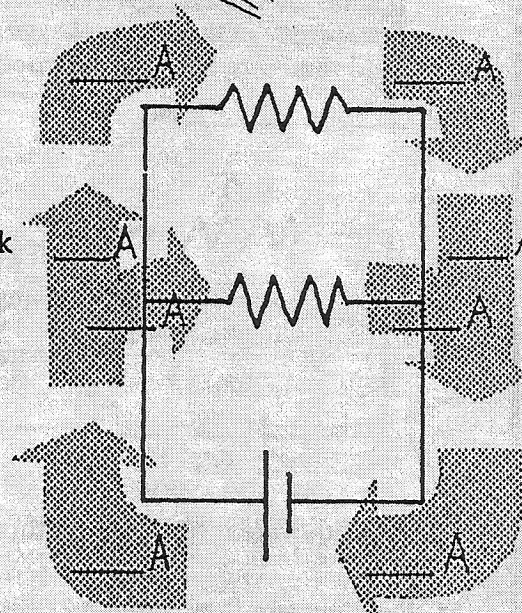
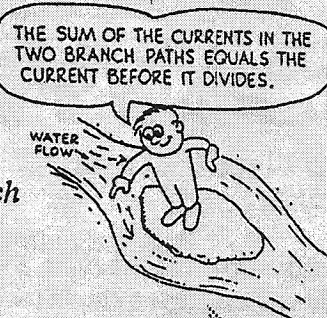
1. In the circuit shown below, there is a voltage drop of 6 V across *each* 2-Ω resistor.



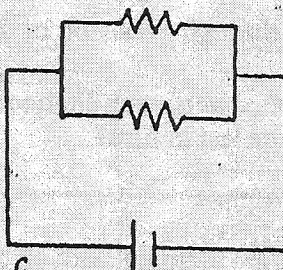
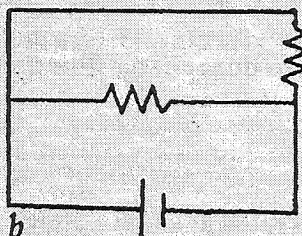
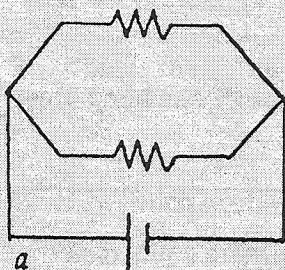
a. By Ohm's law, the current in *each* resistor is \_\_\_\_\_ A.

b. The current through the battery is the sum of the currents in the resistors, \_\_\_\_\_ A.

c. Fill in the current in the eight blank spaces in the view of the *same* circuit shown again at the right.



2. Cross out the circuit below that is *not* equivalent to the circuit above.



3. Consider the parallel circuit at the right.

a. The voltage drop across each resistor is \_\_\_\_\_ V.

b. The current in each branch is:

2-Ω resistor \_\_\_\_\_ A

2-Ω resistor \_\_\_\_\_ A

1-Ω resistor \_\_\_\_\_ A

b. The current through the battery equals the sum of the currents which equals \_\_\_\_\_ A.

c. The equivalent resistance of the circuit equals \_\_\_\_\_ Ω.

