Current in Series Circuits II

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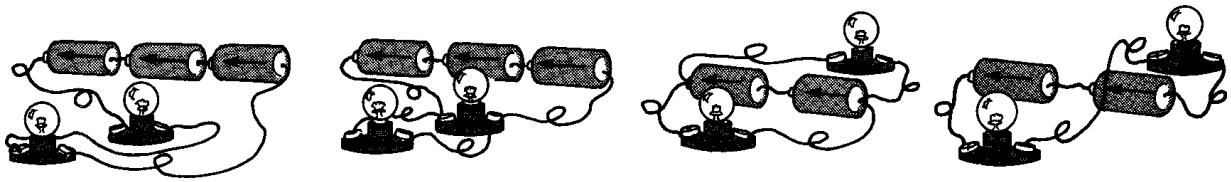
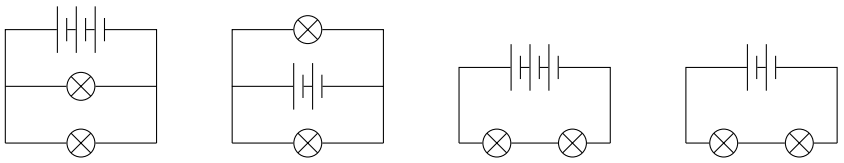
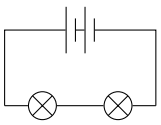
1. The circuits below show two lamps connected to some cells. Which of them are in series?



2. The circuits below show some circuit diagrams. Match these up with the diagrams in question 1.



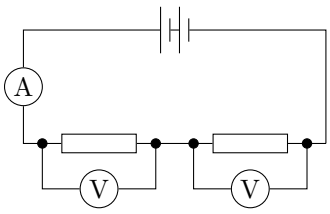
3. The diagram below shows a series circuit.



The bulbs are at normal brightness. Using the words **off**, **dimmer**, **normal** and **brighter**, explain what happens to the bulbs in the following modifications:

(a) One lamp is unscrewed.
(b) One cell is turned around.
(c) Both cells are turned around.
(d) Another cell is added in the same direction as the others.
(e) Another cell is added in the opposite direction to the others.
(f) Another bulb is added.

4. The diagram below shows two resistors connected to a 12 V power supply.



(a) The two resistors have the same resistance. What are the readings on the two voltmeters?
(b) The current can be calculated by dividing the voltage by the resistance. If the total resistance is 6 Ω, what is the current?