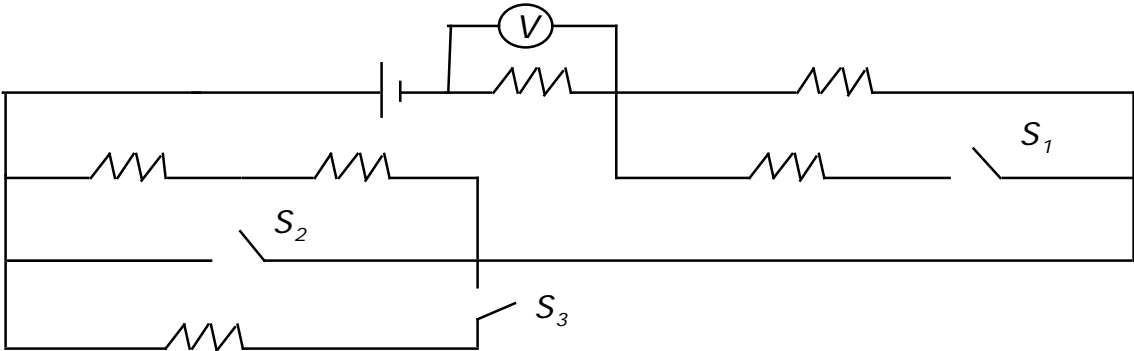


Circuit with Three Open and Closed Switches—Voltmeter Readings I¹⁷⁴

Shown below is a DC circuit that contains a number of switches. Each switch is resistanceless when closed. All of the connecting wires may be considered to have zero resistance. All of the resistors shown are identical. The circuit contains an ideal voltmeter. The diagram shows all of the switches open. Below the diagram are eight different switch configurations for the circuit.

Rank these configurations in terms of the voltmeter reading. That is, put first the configuration for which the voltmeter gives the largest reading, and put last the configuration for which the voltmeter gives the smallest reading. If two or more configurations produce the same voltmeter reading, give these configurations equal ranking.



Configuratio n	S_1	S_2	S_3
A	open	open	open
B	open	closed	closed
C	open	closed	open
D	open	open	closed
E	closed	closed	closed
F	closed	open	open
G	closed	open	closed
H	closed	closed	open

Largest 1_____ 2_____ 3_____ 4_____ 5_____ 6_____ 7_____ 8_____ Smallest

Or, all configurations produce the same voltmeter reading. _____

Please carefully explain your reasoning.

How sure were you of your ranking? (circle one)

Basically Guessed

Sure

Very Sure

1 2 3 4 5 6 7 8 9 10

¹⁷⁴ L. Takahashi