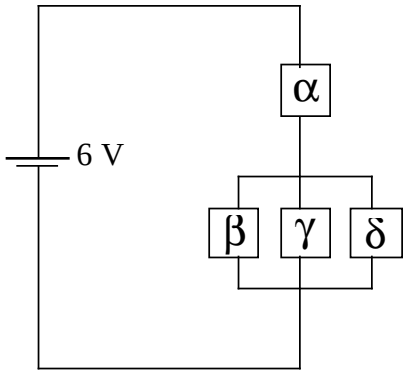
Circuits with Resistors and Capacitors—Current [163]

The circuit shown below has circuit elements α, β, γ, and δ, which are either a 1 F capacitor or a 1, 2, or 4 ohm resistor. Rank the arrangements of circuit elements given below in order from largest to smallest magnitude of current that flows after a long time through the 6 volt battery connected as shown.



Arrangements	α	β	γ	δ
Arrangement A	1F=1 Farad	4Ω = 4 ohms	1Ω = 1 ohm	2Ω = 2 ohms
Arrangement B	1Ω	1F	2Ω	4Ω
Arrangement C	2Ω	1Ω	4Ω	1F
Arrangement D	4Ω	2Ω	1F	1Ω
Arrangement E	1F	1Ω	2Ω	4Ω
Arrangement F	1Ω	4Ω	2Ω	1F
Arrangement G	2Ω	4Ω	1F	1Ω

Ranking of arrangements by magnitude of current through the battery:

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

Which of these arrangements have the same magnitude of current, if any?

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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

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