Current Carrying Wires with Different Resistances—Net Charge ¹⁶⁷

Shown below are six segments of wires that are carrying electric currents. All of these segments have the same length and the same diameter, but the wires are made of different materials so they have different resistances. The currents flowing in these segments also vary. Specific values for each of these properties are given in the figures.

Rank these situations from highest to lowest on the basis of the net electric charge on each segment, i.e., on the basis of the difference between the number of positive and negative charges in the wire segment. Put first the situation that has the greatest net charge, and put last the situation with the smallest net charge, i.e., the smallest difference between the number of positive and negative charges.



Please carefully explain your reasoning.

| How s | sure were y | you of you | ır ranking? | ? (circle on | e) | | | | |
|-------------------|-------------|------------|-------------|--------------|----|-----------|---|---|----|
| Basically Guessed | | | Sure | | | Very Sure | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | | | | | | | | |

Ranking Task Exercises in Physics