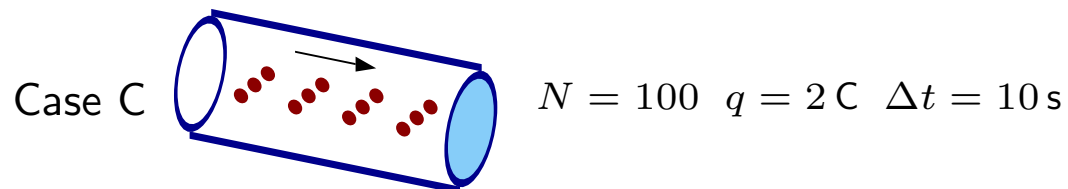
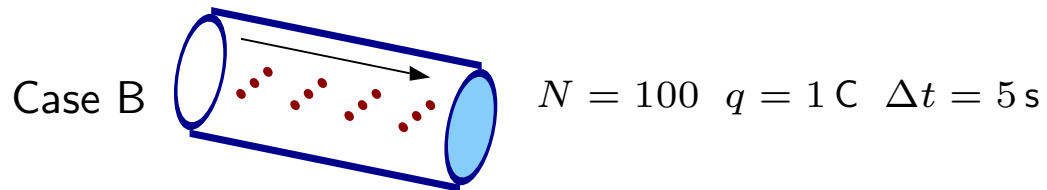
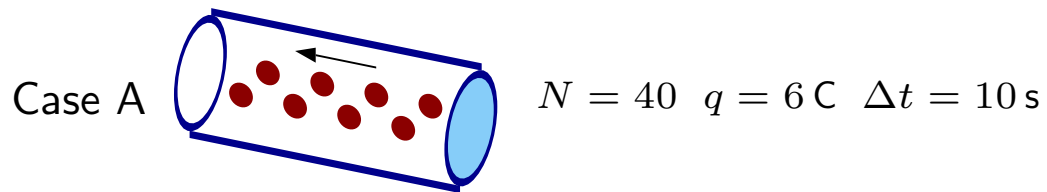


Question 1

Charged particles pass along wires as illustrated. In each case, the number of charged particles that pass through the end of the wire is N , the charge of each particle is q and the time during which this is observed is Δt .

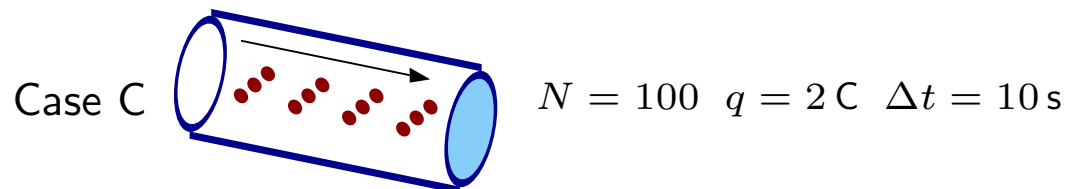
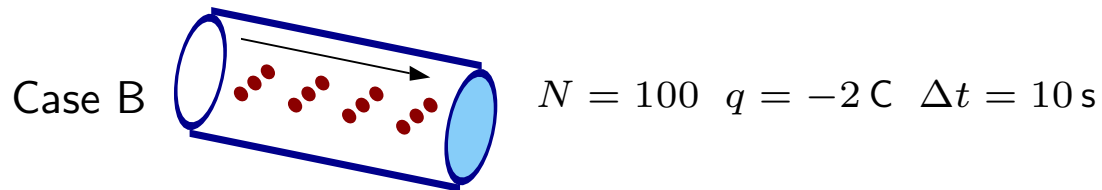
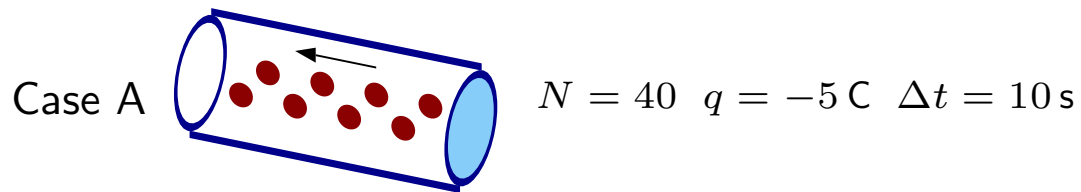


Rank the situations in order of magnitude of current through the shaded end of the wire.

1. $I_C > I_B > I_A$
2. $I_A > I_C > I_B$
3. $I_A > I_C = I_B$
4. $I_B = I_C > I_A$
5. $I_B > I_A = I_C$

Question 2

Charged particles pass along wires as illustrated. In each case, the number of charged particles that pass through the end of the wire is N , the charge of each particle is q and the time during which this is observed is Δt .



Which of these currents are identical (both in magnitude and direction)?

1. All of them.
2. None of them.
3. A and B.
4. A and C.
5. B and C.

Warm Up Question 1

A bulb is connected to a battery with two wires (like Fig 22.13). A 10 A current flows through the wire connecting the positive terminal of the battery to the bulb. Is the current flowing through the other wire (connecting the negative terminal of the battery to the bulb) smaller, larger than or equal to 10 A? Explain your answer.

1. Smaller. The current leaves from the negative side.
2. Smaller. It was consumed producing the light.
3. Same. Charge or current is conserved.

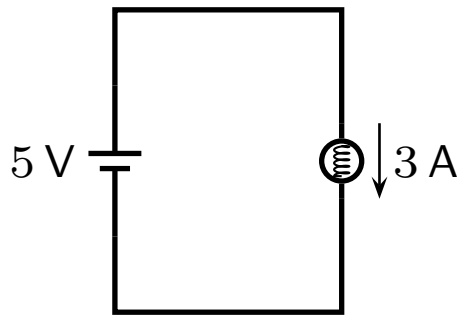
Warm Up Question 2

A battery can succeed in pushing positive charges around a circuit. As described on page 779, these charges move through a wire from the positive terminal (at higher V) to the negative terminal (at lower V). Consider one of these charges as it completes a circuit. As the charge moves through the wire, does its electric potential energy increase, decrease or stay constant? As the charge moves through battery from the negative to positive terminal, does its electric potential energy increase, decrease or stay constant? Explain your answers.

1. Decreases through wire. Increases through battery.
2. Increases through wire. Decreases through battery.
3. Constant through wire. Constant through battery.

Question 3

A bulb is connected to a battery as illustrated.



The current and potential difference across the battery are indicated. The wires offer negligible resistance.

In 2 s a total of 6 C moves from the positive to negative terminal of the battery. Which of the following is true?

1. The energy lost by this charge is 0 J.
2. The energy lost by this charge is 3 J.
3. The energy lost by this charge is 5 J.
4. The energy lost by this charge is 6 J.
5. The energy lost by this charge is 30 J.