I. Quantitative analysis of resistors in parallel

Two resistors, \( R_1 = R_2 = R \), are connected in parallel in a circuit. A portion of the circuit is shown at right. It is given that a current \( I \) flows through point A. Note that the amount of current will get divided into two parts at the junction (denoted as a big solid black dot after point A); one of the parts will enter the \( R_1 \) branch, whereas the other part enters the \( R_2 \) branch.

1. How much current \( I_B \) will go towards point B? How much current \( I_C \) will go towards point C? Explain in words.

\[
I_B = \\
I_C =
\]

2. How much current will flow through points D and E? Explain in words.

\[
I_D = \\
I_E =
\]

3. How much current will flow through point F? Explain in words.

\[
I_F =
\]

4. Rank the currents at the labeled points (A – F).

5. Is the voltage-drop \( V_1 \) across \( R_1 \) greater than, less than, or equal to the voltage drop \( V_2 \) across \( R_2 \)? Explain in words and equations.

II. Quantitative analysis of resistors in series

Two resistors, \( R_1 > R_2 \), are connected in series in the following circuit.

1. Rank the currents \( I \) at the labeled points (A – C).

2. Is the voltage drop across \( R_1 \) greater than, less than, or equal to the voltage drop across \( R_2 \)? Use Ohm’s law to support your answer.