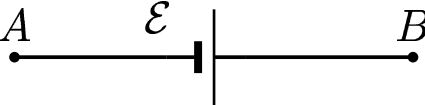
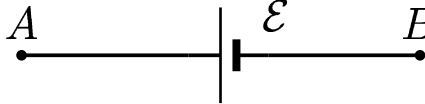


Find the loop equation for the loop $ABCD$.

- A) $\mathcal{E}_2 + i_2 R_2 - \mathcal{E}_1 + i_1 R_1 = 0$
- B) $\mathcal{E}_2 - i_2 R_2 + \mathcal{E}_1 - i_1 R_1 = 0$
- C) $\mathcal{E}_2 + i_2 R_2 - \mathcal{E}_1 - i_1 R_1 = 0$
- D) $\mathcal{E}_2 + i_2 R_2 + \mathcal{E}_1 - i_1 R_1 = 0$
- E) $\mathcal{E}_2 - i_2 R_2 - \mathcal{E}_1 + i_1 R_1 = 0$

For loop $ABCD$, we have $\mathcal{E}_2 - i_2 R_2 - \mathcal{E}_1 + i_1 R_1 = 0$

Convention 1:  $\Delta V = V_B - V_A = +\mathcal{E}$

 $\Delta V = V_B - V_A = -\mathcal{E}$

Convention 2:  $\Delta V = V_D - V_C = -iR$

 $\Delta V = V_D - V_C = +iR$

Convention 3: Currents into a junction are positive and currents out of a junction are negative.

Answer **E**.