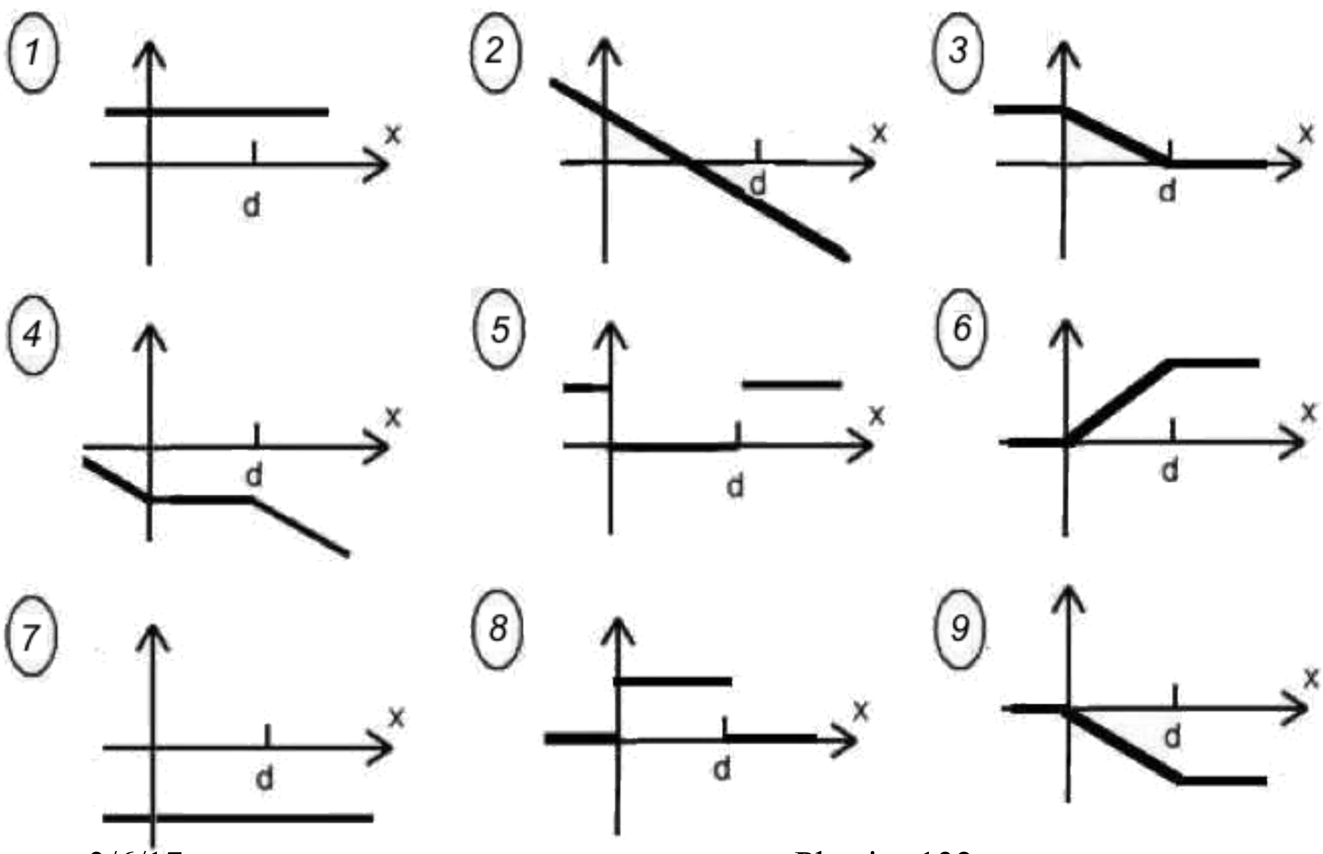
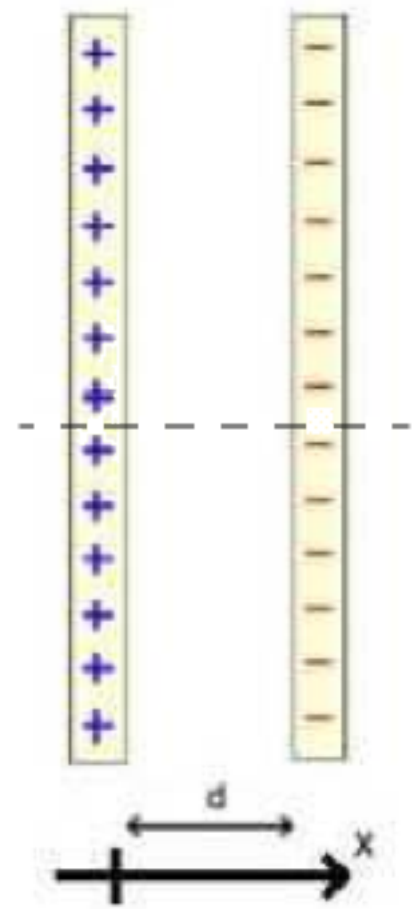
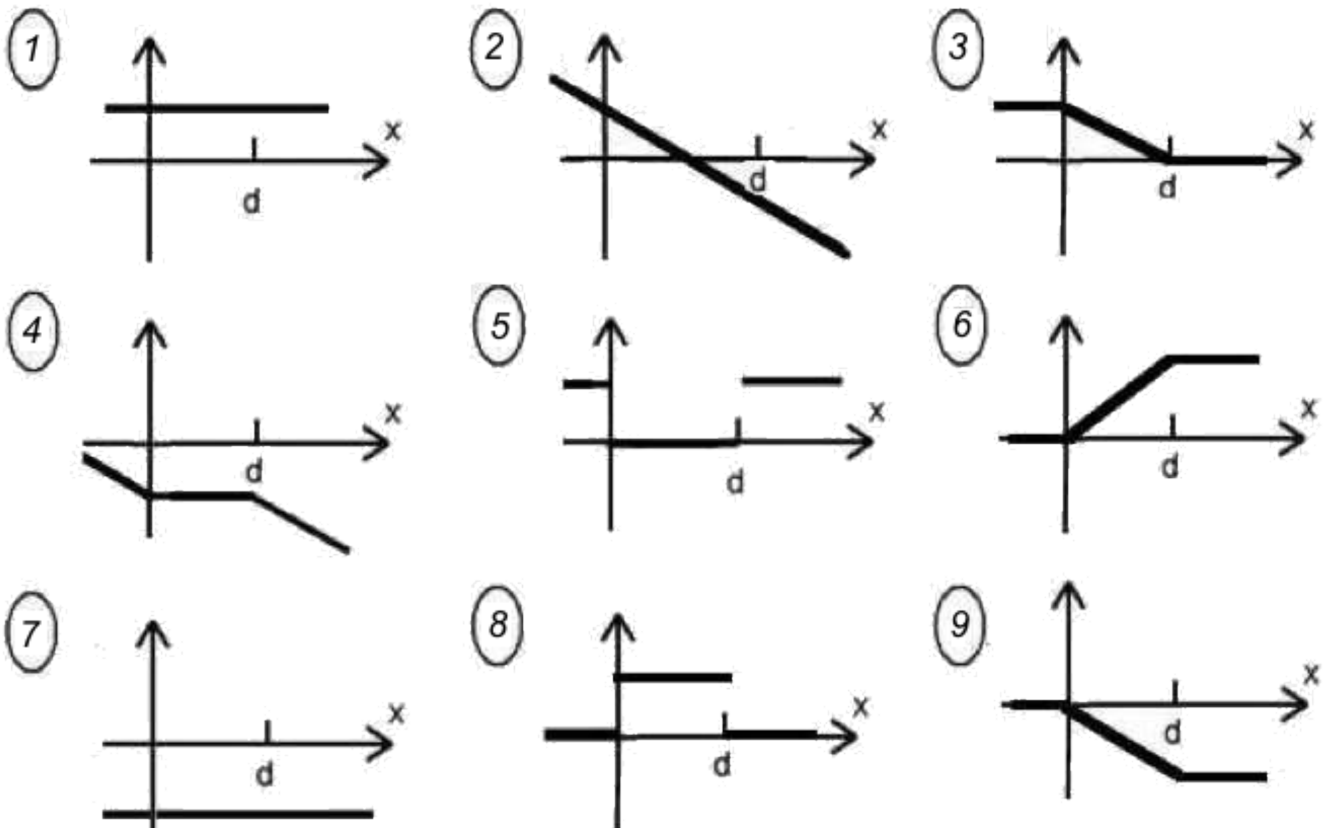
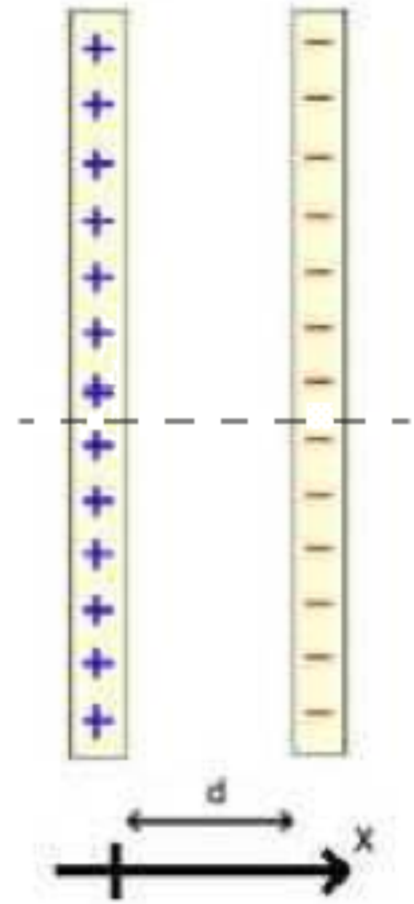
If the sheets can be modeled as if they were infinitely large, and perfectly smooth (ignoring atomicity) which of the following graphs might serve as a graph of the x-component of the electric field as a function of the coordinate x along the dotted line?



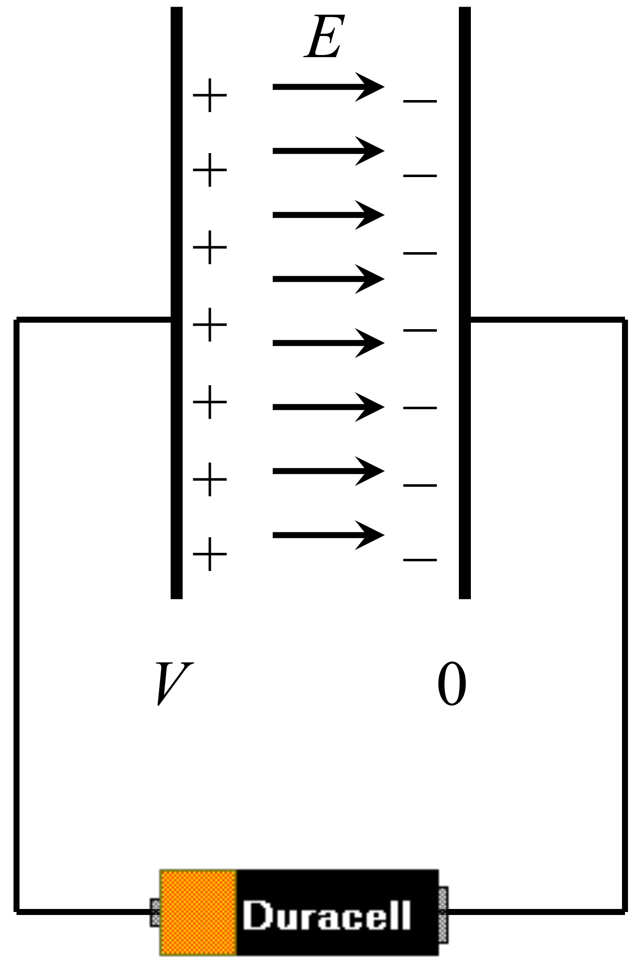
If the sheets can be modeled as if they were infinitely large, and perfectly smooth (ignoring atomicity) which of the following graphs might serve as a graph of the electric potential as a function of the coordinate x along the dotted line?



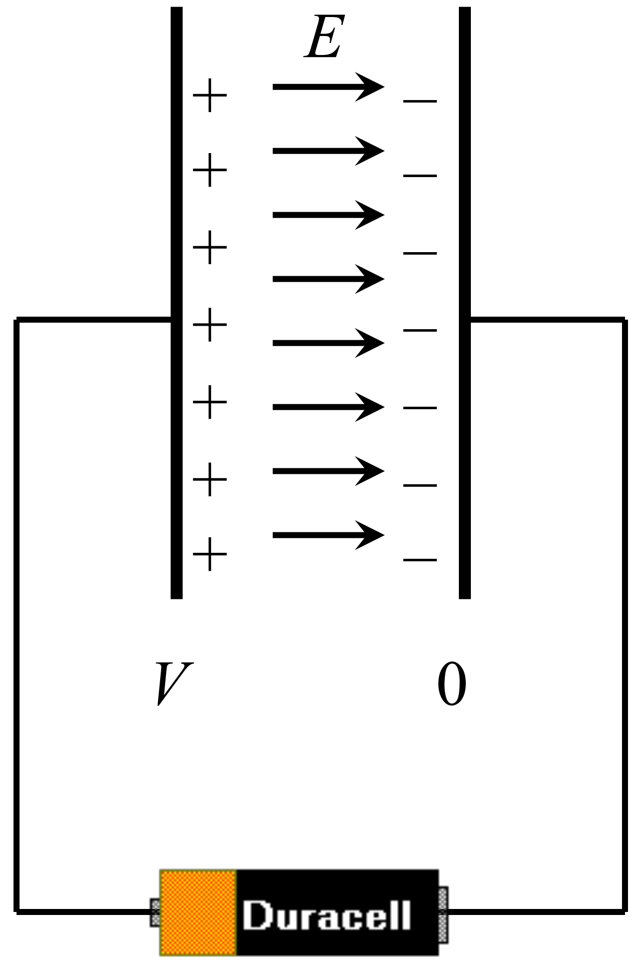
What would happen to the voltage if you first disconnected the battery and then pulled the plates further apart?

1. The potential difference would increase.
2. The potential difference would decrease.
3. The potential difference would stay the same.



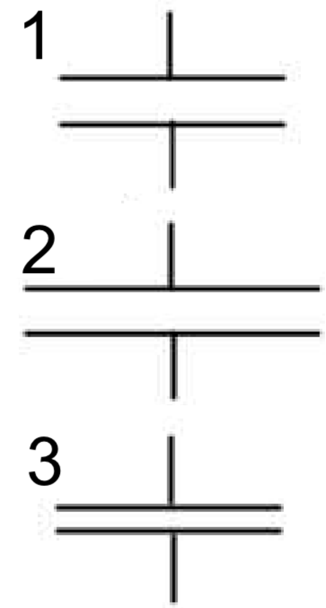
What would happen to the voltage if you stayed connected to the battery and then pulled the plates further apart?

1. The potential difference would increase.
2. The potential difference would decrease.
3. The potential difference would stay the same.




Three capacitors 1, 2, 3 are connected to identical batteries so they each have the same $\Delta V$.
Their plate areas and separations are as follows:
$A_2 = 2A_1 = 2A_3$; $d_1 = d_2 = 2d_3$.

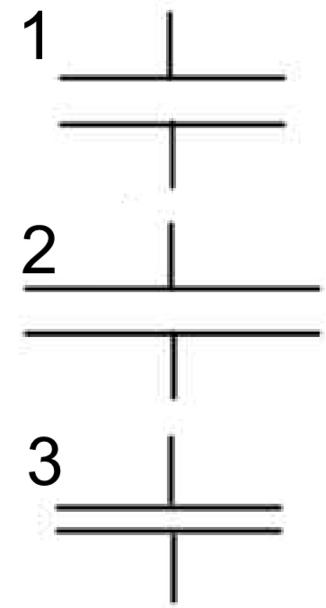
How do the E fields inside them rank?




1. $E_2 = E_3 > E_1$
2. $E_3 > E_1 = E_2$
3. $E_2 > E_1 > E_3$
4. $E_2 > E_1 = E_3$
5. $E_1 = E_2 > E_3$
6. $E_1 = E_2 = E_3$
7. Other


Three capacitors 1, 2, 3 are connected to identical batteries so they each have the same $\Delta V$.
Their plate areas and separations are as follows:
$A_2 = 2A_1 = 2A_3$; $d_1 = d_2 = 2d_3$.

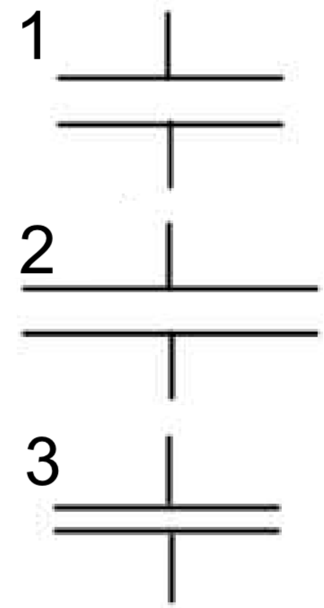
How do the net charges on them rank?




1. $Q_2 = Q_3 > Q_1$
2. $Q_3 > Q_1 = Q_2$
3. $Q_2 > Q_1 > Q_3$
4. $Q_2 > Q_1 = Q_3$
5. $Q_1 = Q_2 > Q_3$
6. $Q_1 = Q_2 = Q_3$
7. Other

Three capacitors 1, 2, 3 are connected to identical batteries so they each have the same $\Delta V$.
Their plate areas and separations are as follows:
$A_2 = 2A_1 = 2A_3; d_1 = d_2 = 2d_3.$

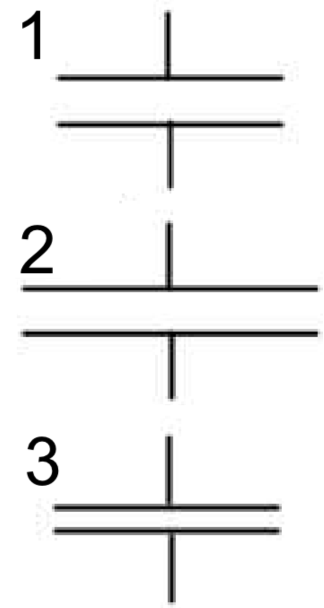
How do the positive charges on their top plate rank?




1. $Q_2 = Q_3 > Q_1$
2. $Q_3 > Q_1 = Q_2$
3. $Q_2 > Q_1 > Q_3$
4. $Q_2 > Q_1 = Q_3$
5. $Q_1 = Q_2 > Q_3$
6. $Q_1 = Q_2 = Q_3$
7. Other


Three capacitors 1, 2, 3 are connected to identical batteries so they each have the same $\Delta V$.
Their plate areas and separations are as follows:
$A_2 = 2A_1 = 2A_3$; $d_1 = d_2 = 2d_3$.

How do the voltage drops across their plates rank?




1. $\Delta V_2 = \Delta V_3 > \Delta V_1$
2. $\Delta V_3 > \Delta V_1 = \Delta V_2$
3. $\Delta V_2 > \Delta V_1 > \Delta V_3$
4. $\Delta V_2 > \Delta V_1 = \Delta V_3$
5. $\Delta V_1 = \Delta V_2 > \Delta V_3$
6. $\Delta V_1 = \Delta V_2 = \Delta V_3$
7. Other