

1. The magnitude of a uniform electric field between two plates is about $5 \times 10^6 \text{ N/C}$. If the distance between these plates is 2.5 cm, find the potential difference between the plates.

2. An electron is released from rest in a uniform electric field with a magnitude of $5.0 \times 10^4 \text{ V/m}$. The electron is displaced 20 cm as a result.
 - A. Find the potential difference between the electron's initial and final positions.
 - B. Find the change in electrical potential energy of the electron because of this displacement.