

3. A 4-Volt battery is connected to two parallel plates, separated by a distance of 0.25 mm. Find the magnitude of the the electric field created between the plates.
4. A proton starts moving from rest in an electric field of magnitude 6.5×10^5 V/m. The field points in the positive x-direction, and under the influence of the field, the proton moves 0.25 meters in that direction.
- What is the change in the proton's electric potential as a result of the displacement?
 - What is the change in the proton's electric potential energy due to the displacement?
 - What is the speed of the proton after it has moved 0.25 meters, beginning from rest?

5. If 3 C of charge are moved through a +12 V potential difference, what is the change in electric potential energy?
6. An electric field of constant strength 6 N/C point in the positive y direction. A proton moves from the origin to the point (0, 2) m. What is the change in the proton's electric potential? What would be the change in electric potential if an electron moved the same way?
7. A particle with charge 1.7 micro Coulombs moves along an electric field line in a field of strength 35 N/m. If the particle moves 19 meters along the line, what is the change in its electric potential and electric potential energy?

8. A -3 C charge moves through a 2000 V loss of electric potential. Will the charge gain or lose electric potential energy? Will the charge gain or lose kinetic energy?

9. Find the total electrical potential energy of the system of charges shown:

