

Solutions

2.1 A In a uniform field between ideal parallel plates, $E = V/d$ away from edge effects. The force is $F = qE$, so its direction reverses for a negative charge. Coulomb force between ideal point charges decreases with separation squared.

2.2 $E = V/d = 100/0.025 = 4,000 \text{ V/m}$.

2.3 False. Field strength is a vector. Potential difference is energy per charge and is not the same quantity. A field-line drawing is a model, not a set of physical threads.

2.4 electric field strength. electric field strength means Electric force per unit positive test charge.

3.1 $E = 4,000 \text{ V/m}$ from positive to negative plate. Force magnitude is 0.0080 N opposite the field. The uniform model excludes edge fringing.