

18 Uniform fields and force — Part 2

— Answers

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Work through these after trying the questions yourself.

18.1 A uniform field.

18.2 $E = V/d$.

18.3 $E = V/d = 10/0.020 = 500 \text{ V m}^{-1} \text{ (N C}^{-1}\text{)}$.

18.4 $F = qE$.

18.5 $F = qE = (4.0 \times 10^{-6})(2000) = 8.0 \times 10^{-3} \text{ N}$.

18.6 $E = V/d$. With V fixed, increasing d makes E smaller — the field gets weaker.

18.7 The electron is negative, so the force on it is opposite to the field — it moves towards the positive plate. The field is uniform, so the force is constant, giving a constant acceleration, so it speeds up steadily.