

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.