

29. The magnitude of the force acting on the electron is $F = eE$, where E is the magnitude of the electric field at its location. The acceleration of the electron is given by Newton's second law:

$$a = \frac{F}{m} = \frac{eE}{m} = \frac{(1.60 \times 10^{-19} \text{ C})(2.00 \times 10^4 \text{ N/C})}{9.11 \times 10^{-31} \text{ kg}} = 3.51 \times 10^{15} \text{ m/s}^2 .$$