

70. The fact that the fields are uniform, with the feature that the charge moves in a straight line, implies the speed is constant (if it were not, then the magnetic *force* would vary while the electric force could not – causing it to deviate from straight-line motion). This is then the situation leading to Eq. 29-7, and we find

$$|\vec{E}| = v|\vec{B}| = 500 \text{ V/m} .$$

Its direction (so that $\vec{F} = q(\vec{E} + \vec{v} \times \vec{B})$ vanishes) is downward (in “page” coordinates).