Answer on Question #84098, Physics / Electromagnetism

Question:

An electron starting from rest moves Unimpeded in an electric field of intensity E volts per meter, find

1. The force it experiences
2. The acceleration
3. The kinetic energy attained in moving through a P.D of v volt
4. The velocity attained in moving through P.D of V volts

Solution:

1. The force f = eE, e – electron charge
2. The acceleration $a = \frac{f}{m} = \frac{eE}{m}$
3. The kinetic energy K = eV
4. The velocity $v = \sqrt{\frac{2K}{m}} = \sqrt{\frac{2eV}{m}}$

The answer:

1. The force f = eE
2. The acceleration $a = \frac{eE}{m}$
3. The kinetic energy K = eV
4. The velocity $v = \sqrt{\frac{2eV}{m}}$