Answer on Question #47195, Physics, Electric Circuits

A uniform electric field of 200 N/C is in the x-direction. A point charge of 3μ C is released from rest at the origin. What is the kinetic energy of the charge when it is at x = 4 m?

By the law of conservation of energy the work, done by the electric field:

$$W = Eqx$$

is equal to the kinetic energy. Thus, kinetic energy of a charge is:

$$K = W = Eqx$$
$$K = 200 \frac{N}{C} \cdot 3 \cdot 10^{-6}C \cdot 4m = 2.4 \cdot 10^{-3}J$$

Answer: kinetic energy of the charge:

$$K=2.4\cdot 10^{-3}J$$

http://www.AssignmentExpert.com/