## Answer on Question \#47195, Physics, Electric Circuits

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

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

$$
W=E q x
$$

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

$$
\begin{gathered}
K=W=E q x \\
K=200 \frac{\mathrm{~N}}{\mathrm{C}} \cdot 3 \cdot 10^{-6} \mathrm{C} \cdot 4 \mathrm{~m}=2.4 \cdot 10^{-3} \mathrm{~J}
\end{gathered}
$$

Answer: kinetic energy of the charge:

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

