Answer on Question #46022, Physics, Electromagnetism

The electric potential difference between two points A and B is 42 V. What is the work done by an external agent in carrying a charge of
50×10−5C
from A to B at constant speed?

By electric potential definition we have energy of such system :

Define energy of the system in point A as zero

$W = q \cdot U$, at point B

Then work that will be done external force will be :

$$A = 0 - W = -q \cdot U = -50 \cdot 10^{-5} C \cdot 42\, V = -21 \cdot 10^{-3} J = -21\ mJ$$