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$V = 0.070\ V$

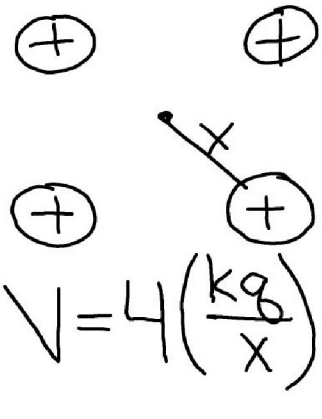
$W = Fd = \Delta E$

$q = e = 1.6 \times 10^{-19}\ C$

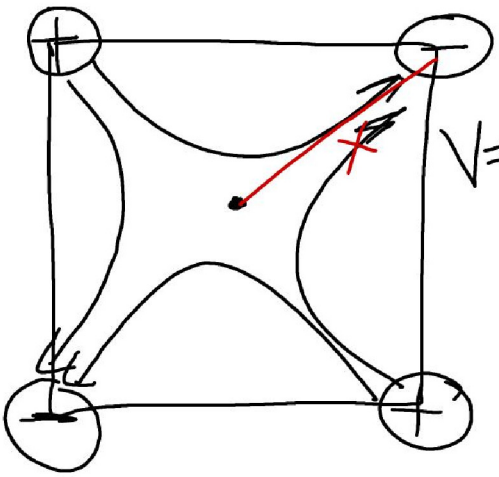
$E_{kegj} = qV$

$\Delta E_e = (1.6 \times 10^{-19})(0 - 0.07)$

$W = -1.12 \times 10^{-20}\ J$



$V = 4\left(\frac{kq}{x}\right)$



$V = 2\left(\frac{kq}{x}\right) + 2\left(\frac{kq}{x}\right)$

A
452V
V=0

B
V_B
$V=V_B$

$U_e = qV$

$K+U_e = 0+q(452) = K+U_e = \frac{1}{2}mV_B^2+qV_B$

C
791V
V=0

B
V_B
$V=2V_B$

$4\left(\frac{1}{2}mV_B\right)^2$

$0+791q = \frac{1}{2}m(2V_B)^2+qV_B$

$452q = \frac{1}{2}mV_B^2+qV_B$

$-qV_B \quad -qV_B$

$791q = 4\left(\frac{1}{2}mV_B\right)^2+qV_B$

$\frac{791}{4}q = \frac{4}{4}\left(\frac{1}{2}mV_B\right)^2+\frac{q}{4}V_B$

$197.75q = \frac{1}{2}mV_B^2+\frac{1}{4}qV_B$

$-\frac{1}{4}qV_B \quad -\frac{1}{4}qV_B$

$452q-V_Bq = \frac{1}{2}mV_B^2 = 197.75q-\frac{1}{4}V_Bq$

Divide by q

$452-V_B = 197.75-\frac{1}{4}V_B$

$254.25 = \frac{3}{4}V_B$

$339V = V_B$

Force

$$\vec{F}_e = \frac{k q_1 q_2}{r^2} = \vec{E} q_2$$

Potential Energy

$$U_e = \frac{k q_1 q_2}{r} = V q_2$$

Field

$$\vec{E} = \frac{k q_1}{r^2} = \frac{\vec{F}}{q_2}$$

Potential

$$V = \frac{k q_1}{r} = \frac{U_e}{q_2}$$