Volts – Unit for Electric Potential
(V) (Voltage)

electron volt (eV) – Unit for Energy

Amount of energy an e^- gains when it moves across 1 V of Potential

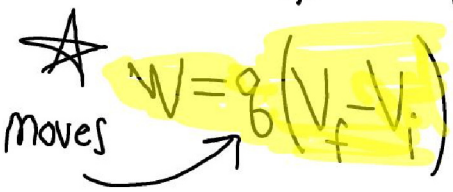
$1eV = 1.6 \times 10^{-19} J$

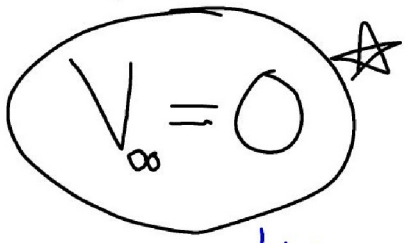
Work $W = \Delta E$

Work done bringing a charge q_2 from one distance (r_i) to another distance (r_f) relative to another charge q_1.

$W = \Delta E$

$W = \frac{kq_1q_2}{r_f} - \frac{kq_1q_2}{r_i}$





$V = \frac{kq}{r}$

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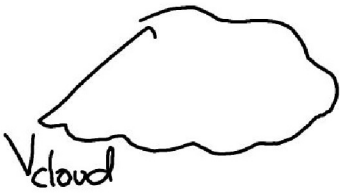
$U_e = \frac{kq_1q_2}{r}$ $V = \frac{kq_1}{r}$

$U_e = (V)q_2$



$V_c - V_g = 1.3\times10^8 V$

$U_e = Vq$

$= (1.3\times10^8 V)(-1.6\times10^{-19} C)$

$= -2.08\times10^{-11} J$

V_{ground}

or $-1.3\times10^8 eV$

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$q_1 = 1.5\times10^{-6} C$

$A \rightarrow B = 0.2 m$

$U_{eA} - U_{eB} = \pm 9\times10^{-4} J$

$F = \frac{kq_1q_2}{r\cdot r}$ $U_e = \frac{kq_1q_2}{r}$

$E = \frac{F}{q}$ $F = \frac{U_e}{r}$

A) Force $= \frac{U_e}{r} = \frac{9\times10^{-4}}{0.2} = 4.5\times10^{-3} N$ Force Points B to A

B) $\vec{E} = ? = \frac{4.5\times10^{-3}}{1.5\times10^{-6}} = 3\times10^3 N/C$ Field B to A B/c its a + charge

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This section is on U_e and V (Hint)

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

$m_e = 9.11 \times 10^{-31} kg$