

B4)

$$V = \frac{kQ}{r} = \frac{PE}{q}$$

$$PE = \frac{kQq}{r}$$

$$PE \rightarrow KE = \frac{1}{2}mv^2$$

$$\frac{kQq}{r} = \frac{1}{2}m_E v^2$$

$$18) \quad Q = CV$$

$$Q_1 = (2.04 \times 10^{-9})(845)$$

$$Q_2 = (6.85 \times 10^{-9})(660)$$

$$C_T = C_1 + C_2$$

$$Q_T = Q_1 + Q_2$$

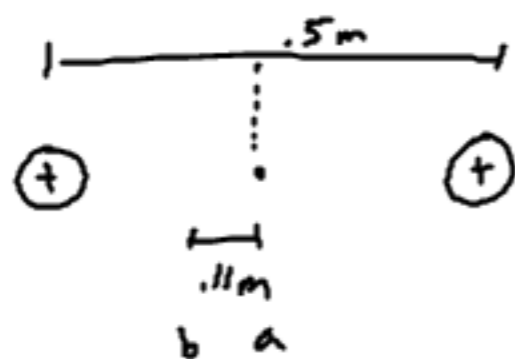
$$Q_T = C_T V'$$

$$V' = \boxed{}$$

$$Q'_1 = C_1 V'$$

$$Q'_2 = C_2 V'$$

2)



$$Q = +30 \times 10^{-6} \text{ C}$$

$$q = +.58 \times 10^{-6} \text{ C}$$

$$PE = Vq = \frac{kQ}{r} q$$

$$W_{\text{work}} = PE_{\text{final}} - PE_{\text{initial}}$$

$$= PE_R + PE_L - [PE'_R + PE'_L]$$

$$= kQq \left[\frac{1}{.14} + \frac{1}{.36} - \left(\frac{1}{.25} + \frac{1}{.25} \right) \right]$$