

Example

Work done by YOU to assemble 3 charges



- $W_1 = 0$
- $W_2 = k q_1 q_2 / r = (9 \times 10^9)(1 \times 10^{-6})(2 \times 10^{-6}) / 5 = 3.6 \text{ mJ}$
- $W_3 = k q_1 q_3 / r + k q_2 q_3 / r$
 $(9 \times 10^9)(1 \times 10^{-6})(3 \times 10^{-6}) / 5 + (9 \times 10^9)(2 \times 10^{-6})(3 \times 10^{-6}) / 5 = 16.2 \text{ mJ}$

- $W_{\text{total}} = +19.8 \text{ mJ}$
- $W_E = -19.8 \text{ mJ}$
- $\Delta U_E = +19.8 \text{ mJ}$
(watch signs!)

