

8. The electrical potential difference is defined as the change in electrical potential energy divided by the charge.

$$\Delta V = \Delta PE / q$$

$$\Delta V = (PE_2 - PE_1) / q$$

$$\Delta V = (0.08 - 0.02) / (3.0 \times 10^{-6}) \text{ J / C}$$

$$\Delta V = 20000 \text{ V} = 2.0 \times 10^4 \text{ V}$$

The potential difference is a positive number, so this indicates that the charge is at a higher potential level at the end of the process than it was at the beginning.