

Solutions

Each answer shows the steps, then the **result**.

2.1

- $\Delta KE = q \Delta V = (5.0 \times 10^{-6})(200) = 1.0 \times 10^{-3} \text{ J}$

2.2

- electric potential energy is converted into kinetic energy

2.3

- $\Delta KE = (1.6 \times 10^{-19})(100) = 1.6 \times 10^{-17} \text{ J}$

3.1 A

3.2 B

3.3

(a)

- $\Delta KE = q \Delta V = (1.6 \times 10^{-19})(1000) = 1.6 \times 10^{-16} \text{ J}$

(b)

- $\frac{1}{2}mv^2 = 1.6 \times 10^{-16} \Rightarrow v = \sqrt{\frac{2(1.6 \times 10^{-16})}{1.67 \times 10^{-27}}} = 4.4 \times 10^5 \text{ m s}^{-1}$