

1. (a) An Ampere is a Coulomb per second, so

$$84 \text{ A} \cdot \text{h} = \left(84 \frac{\text{C} \cdot \text{h}}{\text{s}} \right) \left(3600 \frac{\text{s}}{\text{h}} \right) = 3.0 \times 10^5 \text{ C} .$$

- (b) The change in potential energy is $\Delta U = q \Delta V = (3.0 \times 10^5 \text{ C})(12 \text{ V}) = 3.6 \times 10^6 \text{ J}$.