2. Our calculation is similar to that shown in Sample Problem 43-1. We set $K = 5.30\,\text{MeV} = U = (1/4\pi\varepsilon_0)(q_\alpha q_{\text{Cu}}/r_{\text{min}})$ and solve for the closest separation, r_{min} :

$$\begin{aligned} r_{\text{min}} &= \frac{q_\alpha q_{\text{Cu}}}{4\pi\varepsilon_0 K} = \frac{k q_\alpha q_{\text{Cu}}}{4\pi\varepsilon_0 K} \\ &= \frac{(2e)(29)(1.60\times10^{-19}\,\text{C})(8.99\times10^{9}\,\text{V}\cdot\text{m/C})}{5.30\times10^{6}\,\text{eV}} \\ &= 1.58\times10^{-14}\,\text{m} = 15.8\ \text{fm}\ . \end{aligned}$$

We note that the factor of e in $q_\alpha = 2e$ was not set equal to $1.60\times10^{-19}\,\text{C}$, but was instead allowed to cancel the "e" in the non-SI energy unit, electronvolt.