81. (a) Let the quark-quark separation be r. To "naturally" obtain the eV unit, we only plug in for one of the e values involved in the computation:

$$\begin{aligned} U_{\text{up}-\text{up}} &= \frac{1}{4\pi\varepsilon_0}\frac{\left(\frac{2e}{3}\right)\left(\frac{2e}{3}\right)}{r} = \frac{4ke}{9r}\,e \\ &= \frac{4\left(8.99\times 10^9\ \frac{\text{N}\cdot\text{m}^2}{\text{C}^2}\right)\left(1.60\times 10^{-19}\,\text{C}\right)}{9\left(1.32\times 10^{-15}\,\text{m}\right)}\,e \\ &= 4.84\times 10^5\,\text{eV} = 0.484\ \text{MeV}\ . \end{aligned}$$

(b) The total consists of all pair-wise terms:

$$U = \frac{1}{4\pi\varepsilon_0}\left[\frac{\left(\frac{2e}{3}\right)\left(\frac{2e}{3}\right)}{r} + \frac{\left(\frac{-e}{3}\right)\left(\frac{2e}{3}\right)}{r} + \frac{\left(\frac{-e}{3}\right)\left(\frac{2e}{3}\right)}{r}\right] = 0\ .$$