

CH301H: Principles of Chemistry I: Honors
Fall 2016, Unique 50015

Quiz 1, 6 September 2016

The electrostatic potential energy between two charged particles is defined as $V(r) = \frac{q_1 q_2}{4\pi\epsilon_0 r}$, and the force between those two particles is defined as $F(r) = -\frac{dV}{dr}$. The figure below shows the potential energy diagram of two interacting protons.

- Without resorting to your calculator, what is the force on either of the protons at $r = 1 \times 10^{-10}$ m?
- In what direction is that force acting?

$$q = 1.602 \times 10^{-19} \text{ C}; \epsilon_0 = 8.854 \times 10^{-12} \text{ C}^2 \text{ J}^{-1} \text{ m}^{-1}$$

