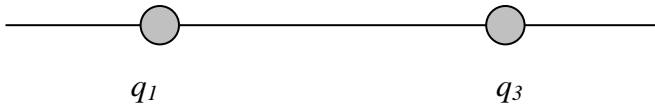


Chapter 21 Examples, Electric Force

- 1) In the Bohr Model of the hydrogen atom, the electron ($-e$) is in orbit about the nuclear proton ($+e$) at a radius of $r = 5.3 \times 10^{-11} \text{ m}$. Determine the magnitudes of the electrical and gravitational forces that each particle exerts on the other.

- 2) Two charges, $q_1 = +4\mu\text{C}$ and $q_3 = +3\mu\text{C}$, are 1 meter apart and lie along a line. Where should a third charge, $q_2 = -5\mu\text{C}$, be placed so that it has no net force on it?



- 3) Three charges are arranged in an equilateral triangle with sides of length 1 meter, as shown below.
- (a) Using vector addition rules, sketch all of the forces on charge 1, then sketch the resultant force acting on charge 1. (set your own approximated scale & stick to it) Use symmetry arguments wherever possible.
- (b) Draw a complete F.B.D. of charge 2. Determine the net force on charge 2 if $q = 5\text{nC}$.
- (c) Think about how you would find the net force on charge 1. Try to come up with the easiest way.

