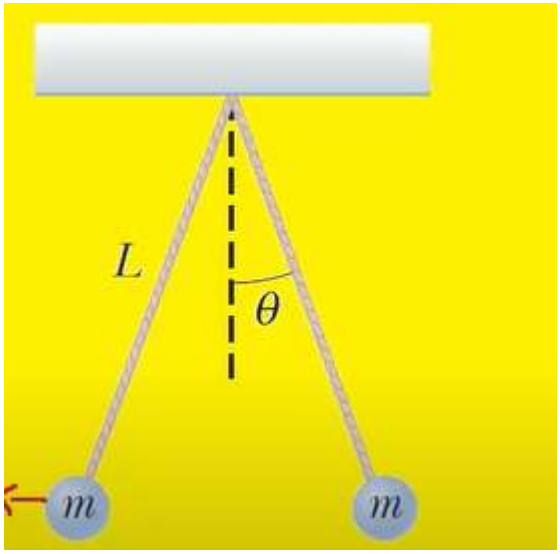
Coulomb's Law Practice Problems

1) Three charges, 2q, -q, q, are held in place at (0, 3), (1, 0), (0, 0) respectively. A fourth charge 3q is introduced at (2, 1). Calculate the electric force experienced by this fourth charged.

2) Two small metallic spheres are suspended as pendulums by light strings from a common point. The spheres have the same charge and mass (m = 0.4 g) are suspended at an angle of 5 degrees with the vertical each with string length of 30cm and held together as shown below. What is the magnitude of each charge?



3) This problem was taken from the Sears and Zemansky's University Physics with Modern Physics Technology Update Hugh D. Young Roger A. Freedman Thirteenth Edition, page 783.

A nonconducting disk of radius R has a uniform positive surface charge density. Find the electric field at a point along the axis of the disk a distance x from its center. Assume that x is positive.

4) Consider the hydrogen atom to be an electric dipole with charges e and -e separated by a distance $0.53 \times 10^{-10} m$. Calculate the torque experienced by a hydrogen atom if positioned in an electric field of 120 N/C at an angle 25º as shown in the figure below.

