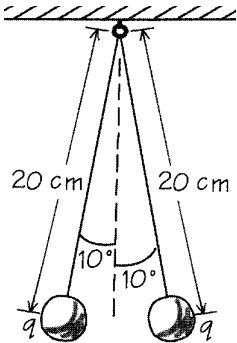


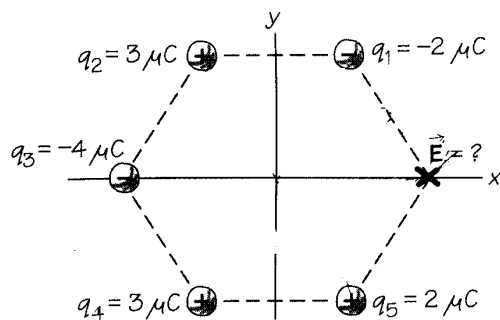
Week 3 (BEGINNING Sept 20th)

Prob2227: Two cork balls, each of mass 0.20 g, are hung by insulating threads 20.0 cm long from a common point. The cork balls are given an equal charge by a Teflon rod. The balls repel and deflect as shown in the fig. What charge q was given to each cork ball? Assume uniform charge.

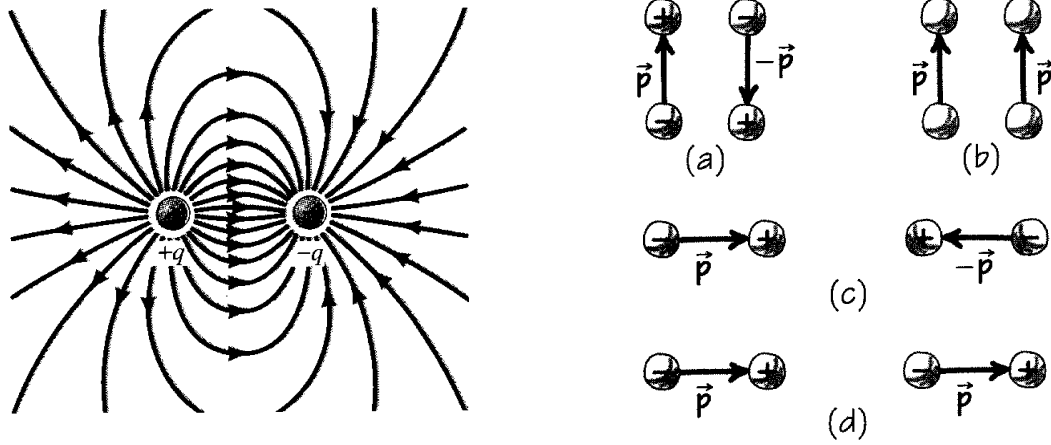


Prob2246: A charge Q is distributed uniformly over a thin ring of radius R . The ring is oriented in the x - y plane with its center at the origin. Find the force on a charge q located at the origin, and discuss the stability of its motion in the x y -plane. How does this compare with the case of a point charge placed at the center of a sphere whose surface is uniformly charged?

Prob2305: Five charges are located at five of the corners of a regular hexagon with sides of 10 cm, as shown in the figure. Find the electric field at the sixth corner of the hexagon.



Prob2317: The field lines due to an electric dipole p are shown in the figure on the left. By definition, the direction of p points from $-q$ to $+q$. Sketch the field lines for the combination of this dipole and (a) a dipole $-p$ adjacent and parallel to the dipole p ;



- (b) a dipole p adjacent and parallel to the dipole p ;
(c) a dipole $-p$ on the axis of p some distance away past the $-q$ charge;
(d) a dipole p on the axis of p some distance away past the $-q$ charge (see Fig.).

Prob2327: Two large, flat, vertically oriented plates are parallel to each other, a distance d apart. Both have the same uniform positive charge density σ . What is the electric field in the space around and between them?

Prob2340: A negative charge is restricted to move in plane in which there is a continuous line of positive charge and a charge density λ . The negative charge of mass m can pass the line of positive charge freely. What is the equation of motion of the positive charge ?

Prob2352. A molecule of lithium fluoride (LIF) has a permanent dipole moment. The molecule is placed in a uniform electric field of strength 10^4 N/C, and the difference between the maximum and minimum potential energies of the molecule in this field is 4.4×10^{-25} J. What is the electric dipole moment of the LIF molecule?