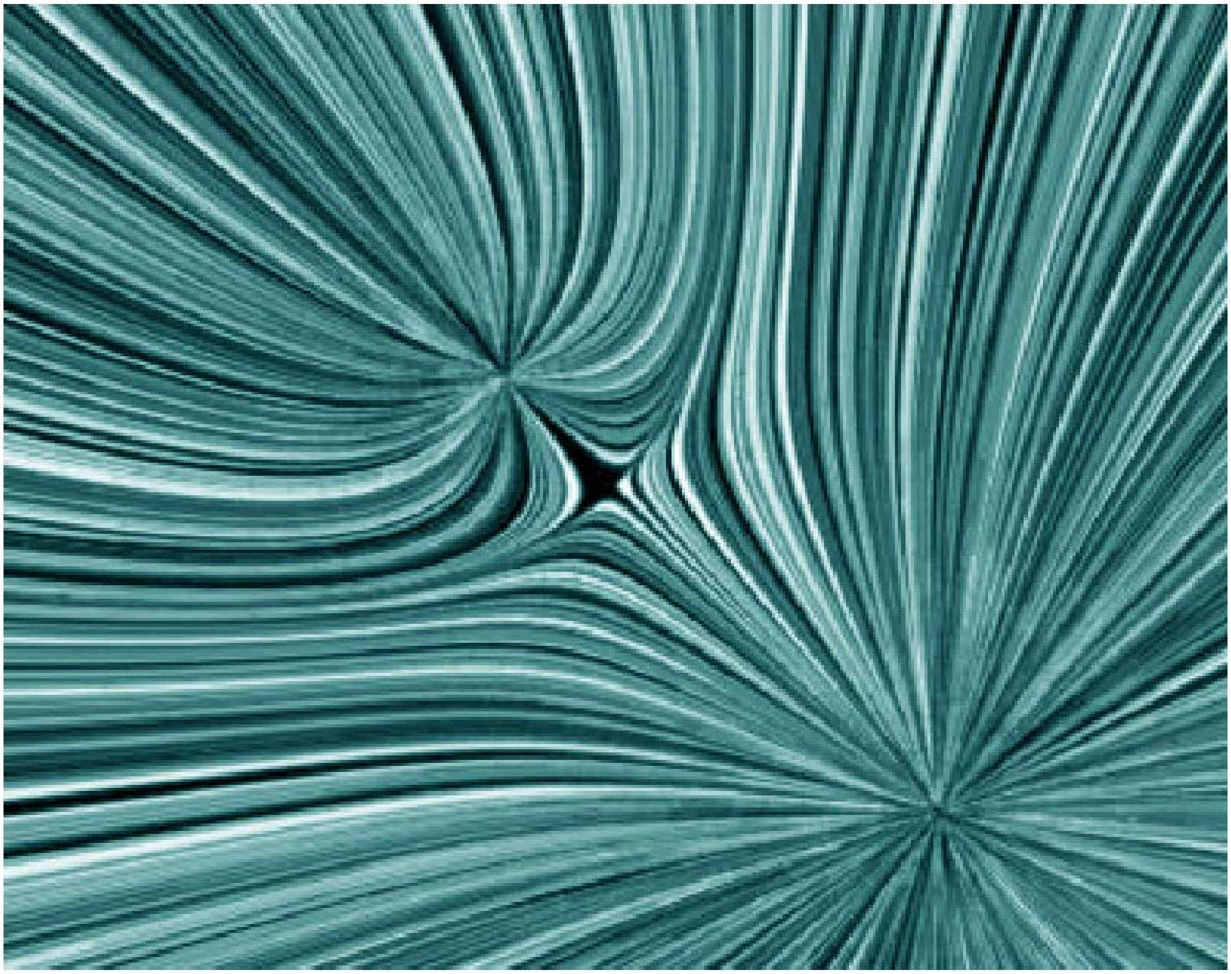
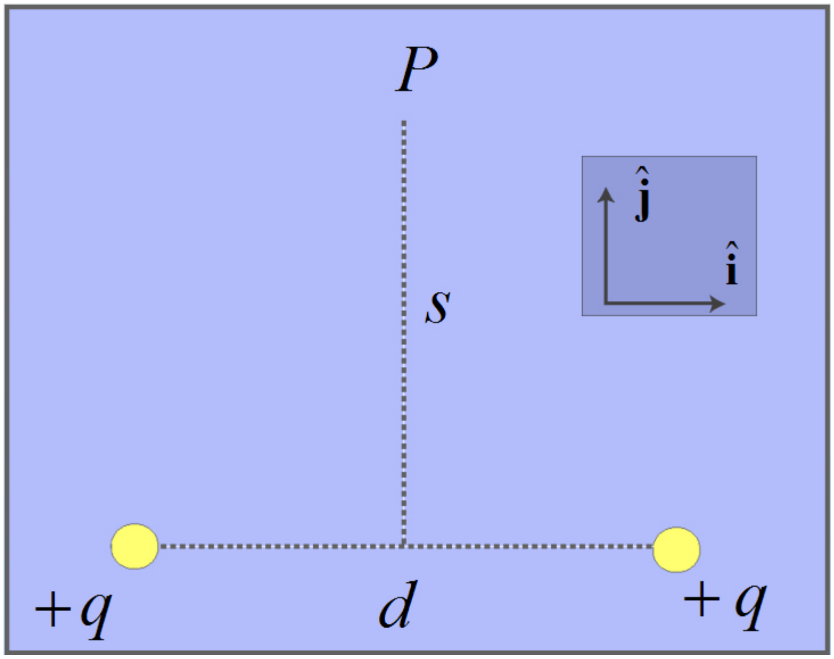
Electric field lines in the space surrounding a charge distribution show:

1. Directions of the forces that exist in space at all times.
2. Only directions in which static charges would accelerate when at points on those lines
3. Only directions in which moving charges would accelerate when at points on those lines.
4. Directions in which either static or moving charges would accelerate when passing through points on those lines.
5. Paths static or moving charges would take.



The force between the two charges is:
1) Attractive
2) Repulsive
3) Can’t tell without more information

E-Field of Two Equal Charges



Electric field at point P is:

1. $\vec{\mathbf{E}} = \dfrac{2k_e q s}{\left[s^2 + \dfrac{d^2}{4}\right]^{3/2}} \hat{\mathbf{j}}$

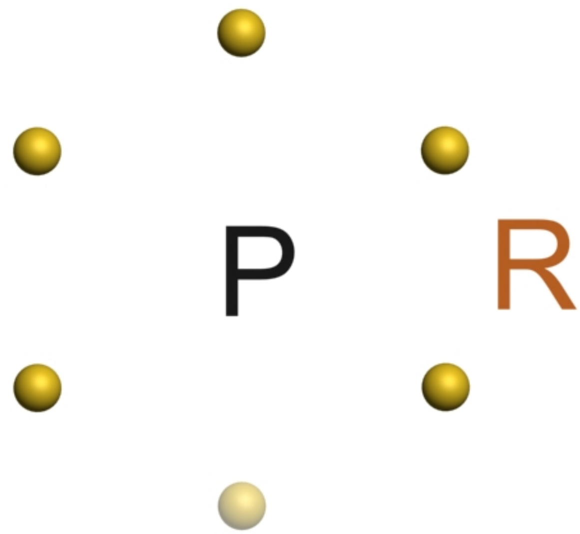
2. $\vec{\mathbf{E}} = -\dfrac{2k_e q d}{\left[s^2 + \dfrac{d^2}{4}\right]^{3/2}} \hat{\mathbf{i}}$

3. $\vec{\mathbf{E}} = \dfrac{2k_e q d}{\left[s^2 + \dfrac{d^2}{4}\right]^{3/2}} \hat{\mathbf{j}}$

4. $\vec{\mathbf{E}} = -\dfrac{2k_e q s}{\left[s^2 + \dfrac{d^2}{4}\right]^{3/2}} \hat{\mathbf{i}}$

5. Don't Know

E-Field of Five Equal Charges



Six equal positive charges q sit at the vertices of a regular hexagon with sides of length R. We remove the bottom charge. The electric field at the center of the hexagon (point P) is:

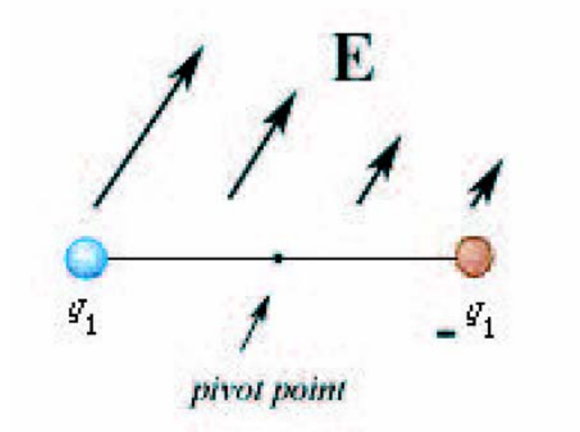
1. $\vec{\mathbf{E}} = \frac{2kq}{R^2} \;\hat{\mathbf{j}}$
2. $\vec{\mathbf{E}} = -\frac{2kq}{R^2} \;\hat{\mathbf{j}}$
3. $\vec{\mathbf{E}} = \frac{kq}{R^2} \;\hat{\mathbf{j}}$
4. $\vec{\mathbf{E}} = -\frac{kq}{R^2} \;\hat{\mathbf{j}}$
5. $\vec{\mathbf{E}} = \vec{0}$
6. Don't know

E-Field of a Dipole

As you move to large distances r away from a dipole, the electric field will fall-off as:

1) $1/r^2$, just like a point charge
2) More rapidly than $1/r^2$
3) More slowly than $1/r^2$
4) Who knows?

An electric dipole, consisting of two equal and opposite point charges at the ends of an insulating rod, is free to rotate about a pivot point in the center. The rod is placed in a non-uniform electric field.



The dipole will experience

1. a noticeable electric force and no noticeable electric torque
2. no noticeable electric force and a noticeable electric torque
3. a noticeable electric force and a noticeable electric torque
4. no noticeable electric force and no noticeable electric torque