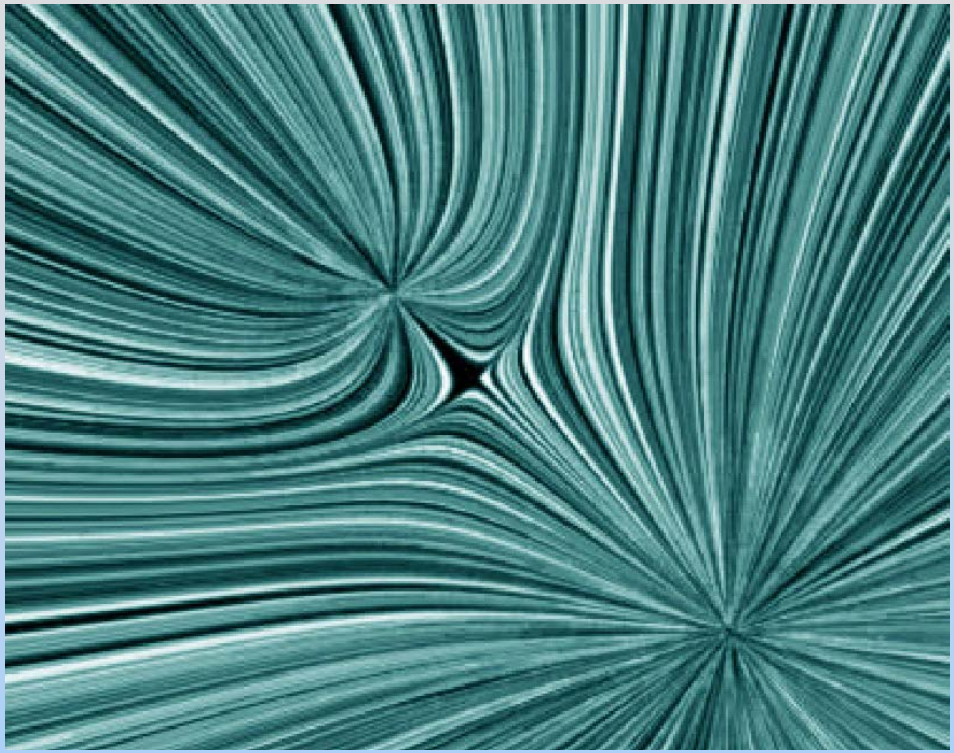
Concept Question: Force



The picture shows the field lines around two charges.

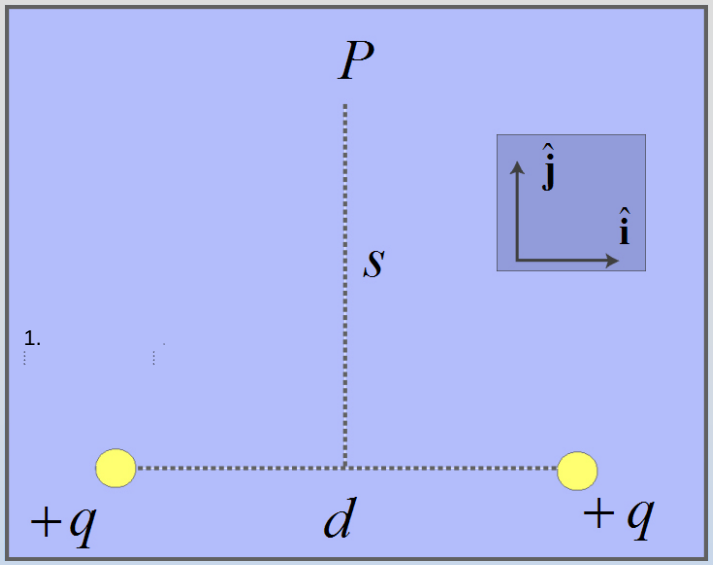
The force between the two charges is:

1. Attractive
2. Repulsive
3. Can’t tell without more information
4. I don’t know

Concept Question: Field Lines

Electric field lines show:

1. Directions of forces that exist in space at all times.
2. Directions in which positive charges on those lines will accelerate.
3. Paths that charges will follow.
4. More than one of the above.
5. I don’t know.



Concept Question: Equal Charges

Electric field at P is:

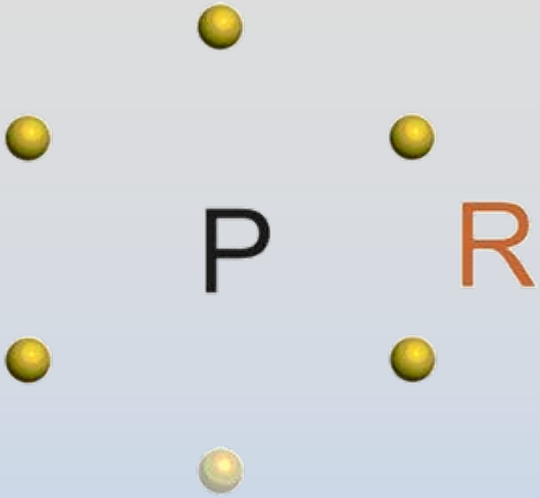
1. $\vec{\mathbf{E}} = \dfrac{2k_e qs}{\left[s^2 + \dfrac{d^2}{4}\right]^{3/2}}\,\hat{\mathbf{j}}$

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

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

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

5. I Don't Know



Concept Question: 5 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 (at point P) is:

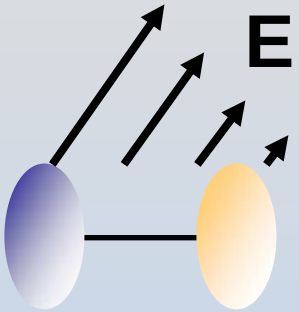
1. $\vec{\mathbf{E}} = \frac{2kq}{R^2}\ \hat{\mathbf{j}}$
2. $\vec{\mathbf{E}} = -\frac{2kq}{R^2}\ \hat{\mathbf{j}}$
3. $\vec{\mathbf{E}} = \frac{kq}{R^2}\ \hat{\mathbf{j}}$
4. $\vec{\mathbf{E}} = -\frac{kq}{R^2}\ \hat{\mathbf{j}}$
5. $\vec{\mathbf{E}} = 0$
6. I Don't Know

Concept Question: Dipole Field

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. I Don't Know

Concept Question: Dipole in Non-Uniform Field



A dipole sits in a non-uniform electric field E, as shown

Due to the electric field this dipole will feel:

1. force but no torque
2. no force but a torque
3. both a force and a torque
4. neither a force nor a torque

8.02SC Physics II: Electricity and Magnetism

Fall 2010