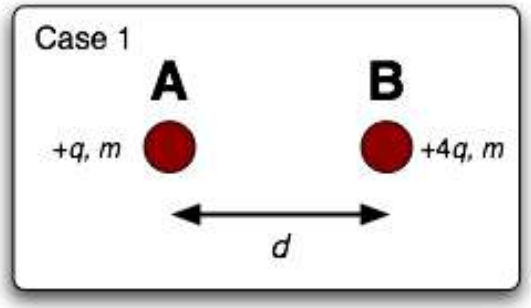
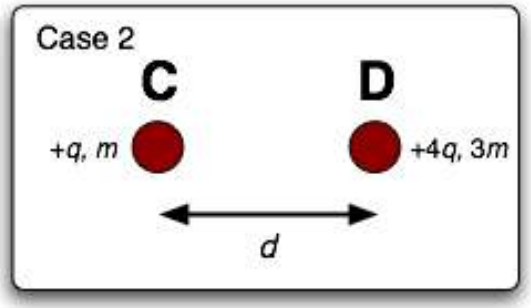
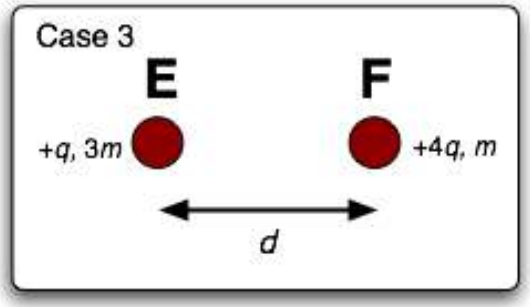
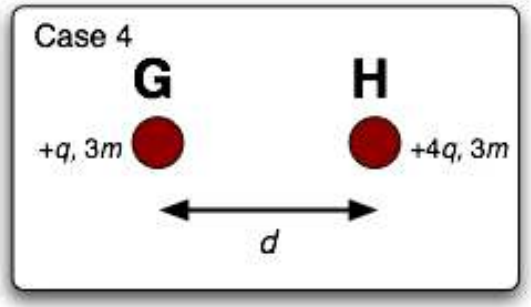
In each of the four cases shown below, a particle of charge +q is placed a distance d from a particle of charge +4q. The particles are then released simultaneously. The masses of the particles are indicated in the diagram. Rank the magnitude of the acceleration of the RIGHT HAND particle just after it is released.

1. Case 1
2. Case 2
3. Case 3
4. Case 4
5. Cases 1 & 2
6. Cases 1 & 3
7. Cases 2 & 4
8. Cases 3 & 4







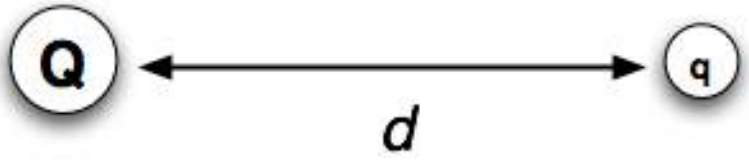


The electric field at a particular point in space

1. Depends only on the magnitude of the test charge used to measure it.
2. Depends only on the sign of the test charge used to measure it.
3. Depends on both the sign and magnitude of the test charge used to measure it.
4. Does not depend on the test charge used to measure it.
5. None of the above.

A test charge, q, is a distance d from a charge Q as shown. It feels an electric field, E_0. If q were replaced by a charge $-3q$, the electric field on it would

1. Change to $-3E_0$
2. Change to $-E_0/3$
3. Not change
4. Change to $3E_0$
5. Change to $E_0/3$
6. Something else



A test charge, q, is a distance d from a charge Q as shown. It feels an electric force, F_0. If q were replaced by a charge -3q, the electric force on it would

1. Change to $-3F_0$
2. Change to $-F_0/3$
3. Not change
4. Change to $3F_0$
5. Change to $F_0/3$
6. Something else