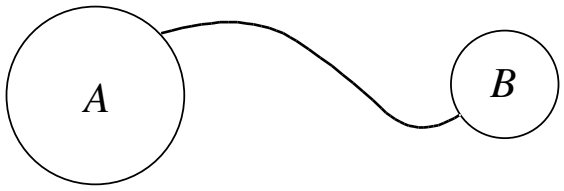
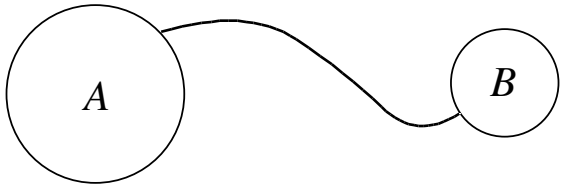
Consider the pair of charged metal spheres connected by a conducting wire shown below. Which of the following quantities must be the same for both spheres?



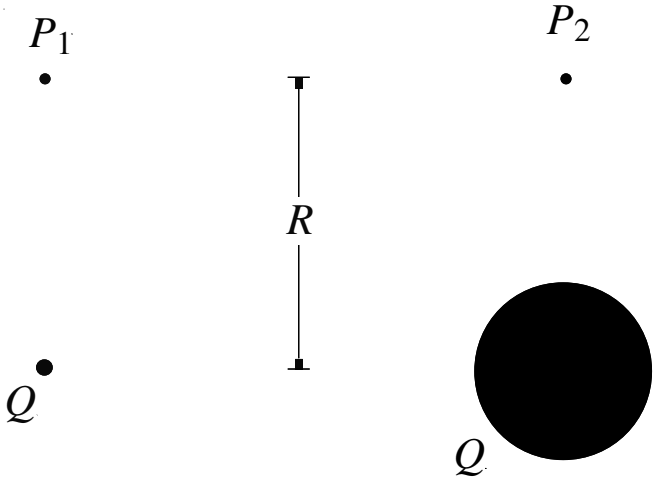
1. Potential at surface.
2. Charge on sphere
3. Surface charge density
4. Field at surface
5. More than one of the above

Consider the pair of charged metal spheres connected by a conducting wire shown below. The radius of sphere *A* is larger than that of sphere *B*. Compared to the electric field at the surface of sphere *B*, the field at the surface of sphere *A* is



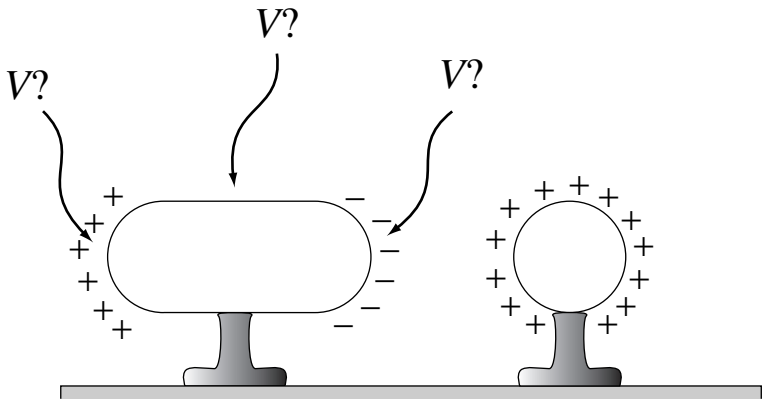
1. larger.
2. the same.
3. smaller.

Consider a point P_1 a distance R away from a point charge Q and a point P_2, a distance R away from the center of a metal sphere of radius $r < R$ carrying a charge Q. If we choose $V(\infty) = 0$ for both systems, which of the two points is at the higher potential?



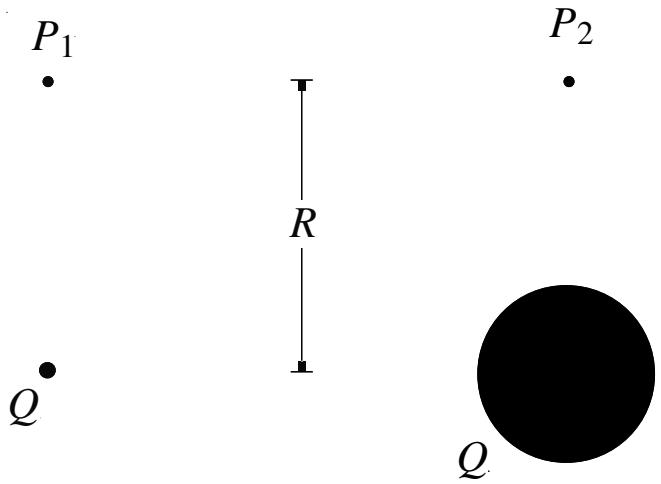
1. P_1.
2. P_2.
3. Both are at the same potential.
4. The answer can only be determined by integrating over the surface charge.

A charged object is brought near an uncharged metal object. Negative charges accumulate on the side of the uncharged object nearest to the charged sphere, positive charges on the opposite side. On the uncharged metal object, the potential is



1. largest on the positive side
2. largest on the negative side
3. largest in the middle
4. the same everywhere

Consider a point P_1 a distance R away from a point charge Q and a point P_2, a distance R away from the center of an insulating sphere of radius $r < R$ carrying a total charge of Q which is uniformly distributed on its surface. If we choose $V(\infty) = 0$ for both systems, which of the two points is at the higher potential?



1. P_1.
2. P_2.
3. Both are at the same potential.
4. The answer can only be determined by integrating over the surface charge.