

Example 1

Two similarly equally charged identical metal spheres A and B repel each other with a force of $2.0 \times 10^{-5} \text{ N}$. A third identical uncharged sphere C is touched to sphere A and then placed at the midpoint between A and B. Calculate the net electrostatic force on C.

Example 2

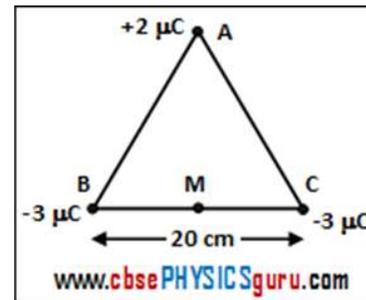
The sum of two point charges is $7 \mu\text{C}$. They repel each other with a force of 1 N when kept 30 cm apart in free space. Calculate the value of each charge. (CBSE 2009)

Example 3

Two identical point charges Q each are separated by a distance r . A third point charge q is placed on the line joining the two charges such that all the three charges are in equilibrium. What is the magnitude, sign and position of the third charge q ?

Example 4

Three point charges of $+2 \mu\text{C}$, $-3 \mu\text{C}$ and $-3 \mu\text{C}$ are kept at the vertices A, B and C respectively of an equilateral triangle of side 20 cm as shown in the figure. What should be the sign and magnitude of the charge to be placed at the mid-point (M) of side BC so that the charge at A remains in equilibrium?

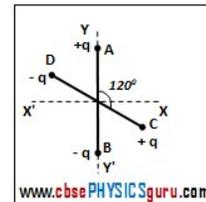


Example 5

Two fixed charges, $-16 \mu\text{C}$ and $4.0 \mu\text{C}$ are separated by 3.0 m . At which point with respect to the positive charge along the line joining the charges is the net electric field zero?

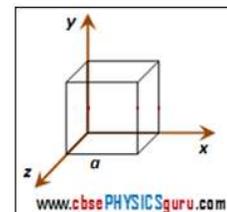
Example 6

Two small identical electrical dipoles AB and CD, each of dipole moment p are kept at an angle of 120° as shown in the figure. What is the resultant dipole moment of this combination? If this system is subjected to electric field (E) directed along $+X$ direction, what will be the magnitude and direction of the torque acting on this combination?



Example 7

Given the electric field in the region $\vec{E} = 2x\hat{i}$, find the net electric flux through the cube and the charge enclosed by it.



Example 8

Two large, thin metal plates are parallel and close to each other. On their inner faces, the plates have surface charge densities of opposite signs and of magnitude $17.0 \times 10^{-22} \text{ C/m}^2$. What is electric field E : (a) in the outer region of the first plate, (b) in the outer region of the second plate, and (c) between the plates?

