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Answers to phy 102 assignment

1. Consider a negatively charged rubber rod brought near a neutral (uncharged) conducting sphere that is insulted so that there is no conducting path to ground as shown below. The repulsive force between the electron in the rod and those in the sphere cause a redistribution of charges on the sphere so that some electron moves to the side of the sphere farthest away from the rod (fig 13a). The region of the sphere nearest to the negatively charged rod has an excess of positive charged because of the migration of the electron away from the location. If a grounded conductor wire is then connected to the sphere, as in (fig 13b), some of the electron leaves the sphere and travels to the earth. If the wire to the ground id then removed (fig 13c), the conducting sphere is left with an excess of induce positive charged. Finally when the rubber rod is removed from the vicinity of the sphere(fig 13d) the induce positive charge remain on the ungrounded sphere and becomes uniformly distributed over the surface of the sphere

Fig 13a fig 13c

Fig 13b fig 13d

