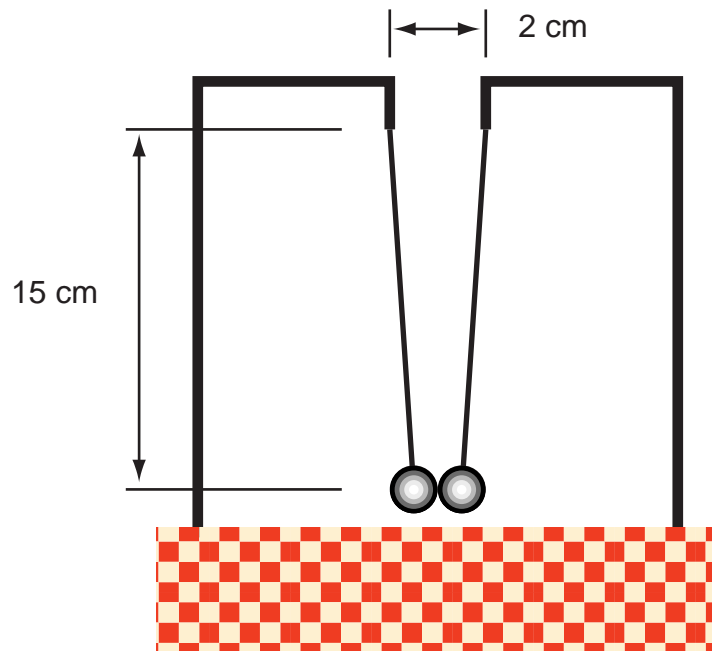


Physics 251
Fall 1998
Homework #1 (Pledged)
Due: Friday September 4, 1998

You are given two metal spheres ($m = 1 \text{ g}$), initially with zero net charge, in the following arrangement:



- (a) The spheres make contact with a charged rod and are separated. Is the sphere on the right attracted, repelled, or unaffected by the one on the left?
- (b) Imagine that instead of allowing the charged rod to make contact, it is brought very close to the sphere on the right. After separation, is the sphere on the right now attracted, repelled, or unaffected by the one on the left?
- (c) Go back to case (a). We have measured the angle from the vertical of the string on the right to be 4° . What are the different possibilities for the charge on each sphere?
- (d) Now go back to case (b) again. For extra credit, what would happen if the charge on each sphere were of magnitude equal to the answer found in part (c).