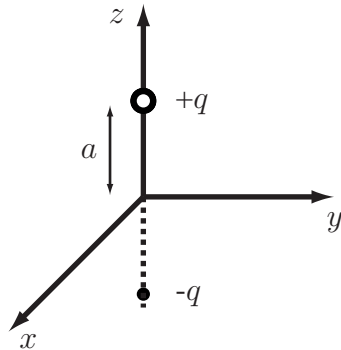
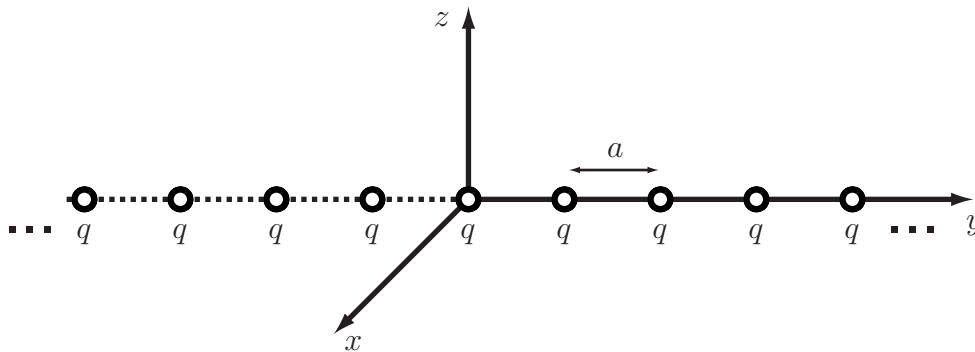


Physics 251
Fall 1998
Homework #2
Due: Friday September 11, 1998



1.

Find the electric field in the xy -plane for the following charge configuration: a charge $+q$ located at $(0, 0, a)$, and a charge $-q$ located at $(0, 0, -a)$, where $q > 0$. Explain each step, (e. g. “Using the principle of superposition...”), and use symmetry to make your work easier.



2.

An array of n very small balls with charge q and spacing a lie along the y -axis, with the central ball located at the origin (and n is an odd number). Find the electric field along the z -axis. What is the field in the limit $n \rightarrow \infty$? If this sum converges, evaluate it. You may need to consult one of the many math references in the library, or some other means (reference your source).

3. Tipler 18-32.

4. Tipler 18-42.

5. Tipler 19-15.