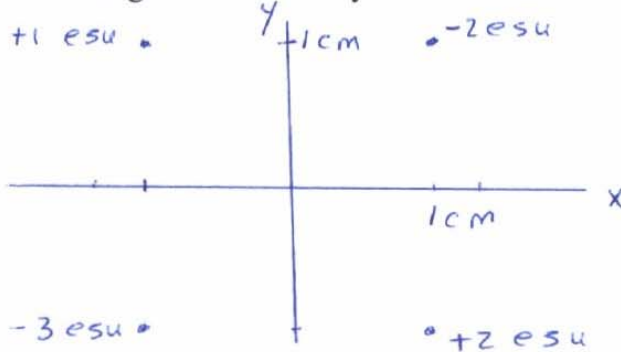


Physics 2020 Assignment 2

1. An electric dipole is defined to have a net charge of zero but has an uneven charge distribution. Consider a dipole to be made of two point charges $\pm q$ separated by a distance as shown below. Qualitatively, sketch the electric field. Don't do any math!



2. Consider four charges held stationary as shown below.



Find the electric field and force on the -2 esu charge.

3. A charge of 1 esu is at the origin. A charge of -2 esu is at $x = 1 \text{ cm}$ on the x axis. Find a point on the x axis where the electric field is zero.
4. A thin plastic rod bent into a semicircle of radius R has a charge of Q in esu, distributed uniformly over its length. Find the strength of the electric field at the center of the semicircle.
5. A thin rod 10 cm long carries a total charge of 8 esu uniformly distributed along its length. Find the strength of the electric field at each of the two points A and B located as shown in the diagram.