Warm-up problems to be done BEFORE recitation #2
Physics 272, Spring 2018

Electric Field

Problem 12

Figure 22-34 shows an uneven arrangement of electrons (e) and protons (p) on a circular arc of radius $r = 2.00 \text{ cm}$, with angles $\theta_1 = 30.0^\circ$, $\theta_2 = 50.0^\circ$, $\theta_3 = 30.0^\circ$, and $\theta_4 = 20.0^\circ$. What are the (a) magnitude and (b) direction (relative to the positive direction of the $x$ axis) of the net electric field produced at the center of the arc?

Electric flux

Problem 2

An electric field given by $\vec{E} = 4.0\hat{i} - 3.0(y^2 + 2.0)\hat{j}$ pierces a Gaussian cube of edge length 2.0 m and positioned as shown in Fig. 23-5. (The magnitude $E$ is in newtons per coulomb and the position $x$ is in meters.) What is the electric flux through the (a) top face, (b) bottom face, (c) left face, and (d) back face? (e) What is the net electric flux through the cube?

from Halliday Resnick and Walker 10th ed Chapter 22 & 23.