

Homework 2

Chapter 19

Problem 31. A $d = 40.0$ cm diameter loop is rotated in a uniform electric field until the position of maximum electric flux is found. The flux in this position is measured to be $\Phi_E = 5.20 \cdot 10^5$ N·m²/C. What is the magnitude of the electric field?

Problem 36. An $m = 10.0$ g piece of Styrofoam carries a net charge of $q = -0.700$ μ C and floats above the center of a large horizontal sheet of plastic that has a uniform charge density σ on its surface. Find σ .

Problem 55. Four identical point charges ($q = +10.0$ μ C) are located on the corners of a rectangle as shown in Figure P19.55. The dimensions of the rectangle are $L = 60.0$ cm and $W = 15.0$ cm. Calculate the magnitude and direction of the resultant electric force exerted on the charge at the lower left corner by the other three charges.

