

Homework 11 for September 16 2008

Due 8AM on September 17 2008

Physics 221 with Professor Jeff Terry

1. A uniform electric field is given by

$\vec{E} = \left(3.0 \frac{N}{C}\right)\hat{i} + \left(2.0 \frac{N}{C}\right)\hat{j} - \left(1.0 \frac{N}{C}\right)\hat{k}$ . What is the electric flux through a flat,  $4.0\text{-m}^2$  area that lies in the y-z plane?

2. A non-uniform electric field passes through a loop (with area element

parallel to the field) of radius 1.0m. The electric field is given by  $r^2 \frac{N}{Cm^2}$

where r is the distance from the center of the loop. What is the total electric flux through the loop?