1) A pretzel is to be dipped in chocolate.
The pretzel is in the shape of a quarter circle of radius 2 cm,
consisting of a straight segment from the origin to the point (2,0),
a circular arc from there to (0,2), followed by a straight segment
back to the origin; all distances are in centimeters.

The (linear) density of chocolate on the pretzel in grams per
centimeter is given by $\lambda = c(x^2 + y^2)$, with x and y in centimeters and
$c = 3$ gm/cm^3 .

Find the total amount of chocolate on the pretzel.

2) Consider an Electric field given by $\vec{\mathbf{E}} = c\hat{\phi}/r$.

Compute the work done on a charge +q as it moves around the same "pretzel" path described above, in the CCW direction. (Given your result - is this an electrostatic E-field?)

$$\vec{\mathbf{E}} = c\hat{\phi}/r.$$