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 λ = c(x2 +y2), with x and y in centimeters and c = 3 gm/cm3 .

Find the total amount of chocolate on the pretzel.

2) Consider an Electric field given by .

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?)