

Recorder: _____

Task Master: _____ Cynic: _____ Other: _____

THE PRETZEL

Working in small groups (3 or 4 people), solve as many of the problems below as possible. Try to resolve questions within the group before asking for help. The Recorder is responsible for writing up the group's results and turning it in. Show your work! Full credit will only be given if your answer is supported by calculations and/or explanations as appropriate.

A pretzel is to be dipped in chocolate. The pretzel is in the shape of a quarter circle, 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 is given by $\lambda = 3(x^2 + y^2)$ in grams per centimeter. Find the total amount of chocolate on the pretzel.