

Group Project 3

Names:

The following project involves 2 main parts. First, a 10 min class presentation using your favorite medium (powerpoint, boardwork,...). Second, the class presentation will be followed by a written report due the same day. Your report should be typed up (**not** handwritten). Both the class presentation and the written report will be equally weighted to compute your grade. You are not allowed to seek help from anyone outside of your group for this project.

Rain Gutter A rain gutter is to be constructed from a metal sheet of width 30 cm by bending up one-third of the sheet on each side through an angle θ .

- (a) Show that the cross-sectional area of the gutter is modeled by the function

$$A(\theta) = 100 \sin \theta + 100 \sin \theta \cos \theta$$

- (b) Graph the function A for $0 \leq \theta \leq \pi/2$.
(c) For what angle θ is the largest cross-sectional area achieved?

