

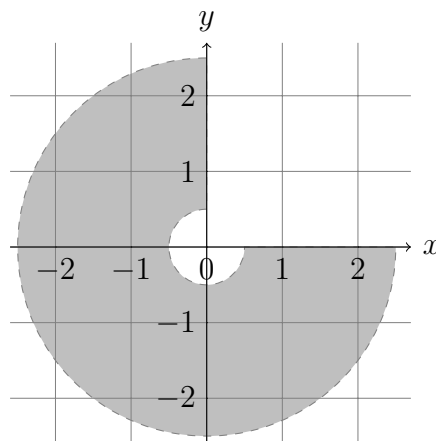
Differential Geometry III – Homework 11

Submission: February 6, 2019, 12:15 am

1. Exercise

(8 points)

Consider the following open subset A of \mathbb{R}^2 :



Use A to construct an atlas of the surface of a frustum of a cone c

$$c(r, v, \varphi) = \begin{pmatrix} \frac{1}{2}rv \cos(\varphi) \\ \frac{1}{2}rv \sin(\varphi) \\ v \end{pmatrix} \text{ where } r \in [0.5, 2.5], v \in]0, 2[, \varphi \in [0, 2\pi],$$

consisting of two charts φ_1, φ_2 which is compatible with the \mathbb{Z}^2 net shown in the sketch above. Sketch your solution.

Total: 8