

Riemannian Geometry

Homework 11

due on Wednesday, May 31

1. Consider the half-plane

$$\mathbb{H}^2 = \{(x, y) \in \mathbb{R}^2 \mid y > 0\}$$

with the hiperbolic metric given by $g_{ij} = \frac{\delta_{ij}}{y^2}$.

Compute:

- (a) the curvature tensor;
- (b) the sectional curvature;
- (c) the Ricci tensor;
- (d) the scalar curvature,

using the respective definitions.