

DIFFERENTIAL GEOMETRY HOMEWORK 9

LECTURER: SIU-CHEONG LAU

Use the fundamental theorem to check whether there exist a regular surface in \mathbb{R}^3 with the following properties.

(1)

$$g(u, v) = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}, h(u, v) = \begin{pmatrix} 0 & 0 \\ 0 & u \end{pmatrix}.$$

(2)

$$g(u, v) = \begin{pmatrix} 1 & 0 \\ 0 & \cos^2 u \end{pmatrix}, h(u, v) = \begin{pmatrix} 1 & 0 \\ 0 & \sin^2 u \end{pmatrix}.$$

DEPARTMENT OF MATHEMATICS AND STATISTICS, BOSTON UNIVERSITY
E-mail address: `lau@math.bu.edu`