

HOME WORK 4

1. Show that if a geodesic on a surface is an asymptotic curve, then it is part of a straight line.
2. Consider the surface $\mathcal{S} = \{(x, y, z) \in \mathbb{R}^3 \mid xyz = 1\}$. Determine all umbilic points on \mathcal{S} .
3. Determine the lines of curvature on the (ruled) surface

$$\mathcal{S} = \{(x, y, z) \in \mathbb{R}^3 \mid z = x + y^3\}.$$

Solutions to be handed in Thursday May 23.