

M-374 QUIZ#2

Name _____

1. Compute the curvature κ for the regular curve $\beta : \mathbb{R} \rightarrow \mathbb{R}^3$ defined by $\beta(t) = (\cosh t, \sinh t, t)$.

2. Let $U = \{(u, v) \mid u > 0, 0 < v < 2\pi\}$ and $x : U \rightarrow \mathbb{R}^3$ be defined by

$$x(u, v) = (u \cos v, u \sin v, u + v)$$

(a) Prove that x is a simple surface.

(b) Compute the metric coefficients of x (i.e., g_{ij}) and g .

(c) Compute the coefficients of the second fundamental form of x (i.e., L_{ij}).