

## Assignment #7

Due 5/31/13

**Reading:**

- [AT] Section 6.1 (for next week).

**Written Problems:**

- (1) [AT] Exercise 5.3.
- (2) Suppose  $S \subseteq \mathbb{R}^3$  is a regular surface, and  $\varphi: \mathbb{R}^2 \rightarrow S$  is a global orthogonal parametrization for which the  $u$ -curves are unit-speed geodesics. Prove that each  $u$ -curve is the unique piecewise smooth curve of smallest length between any two of its points.