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David W Shoenthal* (shoenthaldw@longwood.edu), Dept. of Mathematics and Computer Science, 201 High Street, Farmville, VA 23909. *A Geometric Complexity Problem in a Length Space.*

I discuss a relationship between the complexity of a shortest path problem in three dimensions and a low dimensional length space. The shortest path problem under consideration is in some sense a linearization of a two dimensional shortest path problem. With the aid of length space geometry, I conclude that a version of the knapsack problem is polynomially reducible to the nonholonomic shortest path problem considered. (Received September 14, 2008)