Math 443  
Spring 2016  
Homework 4

Read Sections 3-4 and 4-4. Then do the following exercises:

4-4: 1, 4, 5, 11, 12.

Remarks: In problem 1b, assume that, if the geodesic is parametrized by arc length, then the second derivative of the parametrization is never 0. This is apparently what do Carmo means by “nonrectilinear”.

Problem 12 may seem artificial. However, a nice consequence of this result is given in Problem 13. You should read it and the outline of the solution in the back. (It seems to me that there is a gap in the solution, and I’m not sure that the statement of Problem 13 is entirely correct. It can, however, certainly be rectified without changing its spirit.)

This assignment is due Monday, May 16.