MATH 7721, SPRING 2018

Homework #34, April 4

PROBLEMS

1. Verify that $\nabla[g(u,v)] = \nabla_u v + \nabla_v u$ whenever u, v are locally-gradient smooth vector fields on a Riemannian manifold (M, g).

2.

3. (Hint below.)

Hint. In Problem 2, note that,

Hint. Problem 3: by (19.6) in the day-by-day list of

Problem 3: by (19.6) in the day-by-day list of topics, $\zeta = (\pounds_w g)J$ is an exact skew-Hermitian 2-form, while, in view of (15.3), $\delta w = 0$ if and only if, for this ζ, the right-hand side of (12.1) equals 0.