

Homework 5

Due Monday, September 26, 2022 at 11:59pm

The same instructions given on homework 1 and 2 apply. As before, attribution note [ND] indicates a problem derived from course materials by Nathan Dunfield.

- (P1) Problem 4-6 from Lee, on page 96.
- (P2) If $S \subset M$ is an embedded submanifold and $f \in C^\infty(M)$, then $f|_S$ is a smooth function on S , because it is the composition of two smooth maps: $f|_S = f \circ i$ where $i: S \rightarrow M$ is the smooth embedding. Does every smooth function on an embedded submanifold arise this way? Either prove it always does, or give a counterexample. [ND]
- (P3) Problem 5-7 from Lee, on page 123.