

Mathematics W4081y

Differentiable Manifolds

Assignment #8

Due April 7, 2014

In Spivak, do the following problems: **3–22**, **3–36**, **3–37(a)**, **3–40**, **3–41**.

Notes:

- (1) In **3–37(a)**, the function may be unbounded.
- (2) In **3–40**, assume that g is smooth. Also, the last statement is false in one direction, so give a counterexample instead of a proof.
- (3) Problem **3–41** is worth 20 points.

Also do the following:

1. Let A be the region in \mathbf{R}^2 bounded by the curve $x^2 - xy + 2y^2 = 1$. Express $\int_A xy$ as an integral over the unit disc $B_1(0)$. Hint: Complete the square.