

## Math 141 Homework 4. Due 10/1

“GP $n$ ” denotes Guillemin-Pollack, chapter 1, section  $n$ .

1. GP3, 6, 7

2. GP3, 8

3. GP4, 1-2. Hint for 1: If  $N_p$  is an open neighborhood of  $p$  then  $X = \cup_{p \in X} U_p$  and  $f(X) = \cup_{p \in X} f(N_p)$ . Now pick  $N_p$  with some nice properties and use the local submersion theorem. Hint for 2a: if  $Y$  is connected then the only subsets of  $Y$  which are both open and closed are  $\emptyset$  and  $Y$ .

4. GP4, 3, 5

5. GP4, 12. **Extra credit** GP4, 13.

6. (Not for credit). How hard did you find this homework set? How much time, approximately, did it take you to do the problems?