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Name

**Draft Due: ?**

**Final Version Due: Monday, May 11 at noon**

*True eloquence consists in saying all that is necessary, and nothing but what is necessary.* – La Rochefoucauld

*“By relieving the brain of all unnecessary work, a good notation sets it free to concentrate on more advanced problems, and, in effect, increases the mental power of the race.”* – Alfred North Whitehead

### Directions

You have some choice on which of the following problems you turn in but I expect you to think about all of them. Remember, you may discuss any of these with anyone but there is to be no collaboration on how to write them up.

### Chapter 8, Section C

Do any **two** (2) of

- Exercise 8.C.4 (Page 199): Suppose  $X, Y$ , and  $Z$  are topological spaces. Suppose further  $f : X \rightarrow Y$  is an identification map and  $h : X \rightarrow Z$  is continuous. Show: if  $hf^{-1}$  is a function then  $hf^{-1}$  is continuous.
- Problem 2 of Section C (Page 218): Suppose  $f : X \rightarrow Y$  is  $1 - 1$ . Show that  $f$  is an identification map if and only if  $f$  is a homeomorphism.
- Problem 4 of Section C (Page 218): Find an identification map that is neither open nor closed.