

Category Theory Pset 3

October 3, 2018

Attempt all of these exercises, but do not stress if you cannot complete all of them. Some of the questions are intentionally challenging. For any problem you cannot finish, do write up any partial solution(s) you have and explain your thought process in approaching the problem, along with any failed attempts at the proof. Our intentions in reviewing this assignment is for us to get a feel for how your abilities to think categorically are developing, and not to assign a grade to your work.

1. 3.1.v
2. 3.1.vi
3. 3.1.vii
4. 3.2.iii
5. 3.2.iv
6. 3.2.vi
7. Look through various textbooks/the internet (or if you are really adventurous, try and find one on your own) and find an application of the Yoneda lemma you find particularly compelling, interesting and/or insightful. Write up the use of Yoneda in your own words, along with any thoughts and observations about the lemma in this example (e.g. why you found the example interesting, any new insight you gained from developing a deep understanding of this example, etc....).