

### Test 3 revisions.

Since the class had major difficulties with so many problems, I am allowing the class to redo problems in the following manner. Note that I am not returning the exams prior to getting the revisions, since in most cases I think a fresh start on the problem is preferable to revising your previous solution. The test is posted on the course website.

The scores on the exam will be figured out as follows. We will begin by taking the total points scored on problems 1-3 so far. In addition, you will turn in the following problems according to the following schedule, with the same possible points unless indicated differently below. The total will be added together and taken out of 100 (it is possible to score more than 100, which is okay).

If you did well on some of these problems, you will not be required to redo them. I will send emails to those people saying which problems they do not need to redo. These people will get the maximum possible scores on problems 2 (if 2b is correct) and 3 (if 3a is correct) and 2 bonus points for each of problems 4a, 4b, 5a, and 5b that they got correct on the exam.

Due dates:

Due Thursday 3/28 at 4:00: Problem 3a

Hints: Use the definition of injective, not something like “one thing in the domain only goes to one thing in the codomain.” Also, be sure you are starting with the right assumption ( $g \circ f$  is injective), and then starting the proof that  $f$  is injective properly. While you can do this by proving the contrapositive, it is just as easy to prove the implication directly (possibly easier).

Due Friday 3/29 at 4:00: Problem 5

Due Monday 4/1 at 4:00: Problem 4

Bonus: Take the quiz on problem 4b in class on Monday and get 50% BONUS points (so instead of the points you earn out of 12, you earn 1.5 times the points you earn)

Hints: DO NOT use inverse functions in 4b. It is about preimages, not inverses! Also, in specifying a function you MUST specify domain and codomain. Be sure you do that in 4a.

Due Tuesday 4/2 at 4:00: Problem 2b.

Hints: Be sure you are clear what an equivalence class is, and show that the two equivalence classes are different. This does not take a lot of argument. Remember that if  $x$  is not related to  $y$  then  $E_x \neq E_y$ .

Due Friday 4/5 at 4:00: Extra credit problems, worth 5 points each