

CSCI 243
Test 3 review

Formal definitions of the terms in italics will be provided for you. You still should have them functionally memorized if you are to perform well on the test.

Ideally, the test will have the following questions:

Several proofs of propositions about functions, including

- *function equality*, introduced in Section 5.2, used also in exercises from Section 5.8.
- the *image* and *inverse image* of sets under a function, as in Exercises 5.4.(1-10).
- a function being *one-to-one* and/or *onto*, as in exercises 5.6.(2-6).
- *inverse functions*, introduced in Section 5.7, used in exercises from Section 5.8.
- *function composition*, as in Exercises 5.8.(1-10).

A series of related ML problems dealing with a recursive datatype, like Peano-style `wholeNumber` (Exercises 6.1.(1-5)), `powerOfTwo` (Exercises 6.1.6-9), `homemadeList` (Exercises 6.1.10-17), or `tree` (Exercises 6.2.(1-10)).

A proof by structural induction, as in Exercises 6.4.(1-5).

A proof of a loop invariant, as in Exercises 6.8.(1-5).

Of course, if the test had all of these things independently, it would be too long.