

Quiz 1

Your name: \_\_\_\_\_ Your UVa ID: \_ \_ \_ \_ \_

**Honor policy:** For this quiz, you must work alone, and may not use any resources other than your own brain and body, the pencil or pen you use to write your answers, and this sheet of paper.

1. Chapter 1 of Gleick's *The Information* is about communicating over long distances using (circle one answer):

**Drums                      Optical fibers                      Smoke signals                      Vuvuzelas**

2. As described in Chapter 2 of *The Information*, Donald Knuth found an Old Babylonian tablet that described a:

**Data structure      Procedure                      Tax code                      Writing system**

3. As described in Chapter 3 of *The Information*, Cawdrey's book of English words published in 1604 was organized:

**Alphabetically      By Meaning                      Phonetically                      By Word Type**

4. What kind of expression is  
(make-rotundasaic "mosaic.html" closer-color?)  
?

**Application Expression                      Primitive Expression                      Procedure Expression**

5. What does (if (> 3 4) (\* + +) 7) evaluate to? \_\_\_\_\_

6. According to Chapter 4 of the course book, the first step in the general recursive problem solving strategy is (check one):

\_\_\_ **Be happy! At least it doesn't involve calculus.**

\_\_\_ **Be optimistic! Assume you can solve it.**

\_\_\_ **Be positive! All problems can be solved recursively.**

\_\_\_ **Be resourceful! Use DuckDuckGo to see if anyone has already solved the problem.**

\_\_\_ **Be scared! Recursive definitions are hard.**

This is the end of the graded part of the quiz.  
If you have more time, go on to the **ungraded** questions on the back.

7. (ungraded) How is the pace of the class so far?  
**Too slow    A little too slow    A little too fast    Too fast    Way too fast**
8. (ungraded) How many of the exercises in the book have you done?  
 \_\_\_ **Many of them, and I read the solutions after to check my answers.**  
 \_\_\_ **Many of them, but I didn't look at the solutions.**  
 \_\_\_ **At least a few of them, and I have also read the solutions.**  
 \_\_\_ **At least a few of them, but I didn't know there are solutions available.**  
 \_\_\_ **None.**
9. Do you prefer to have more standard lectures, or more classes like last Friday where we work in small groups on problems?  
 \_\_\_ **Prefer Only Lectures**  
 \_\_\_ **Prefer Mostly Lectures (3 Lectures most weeks and occasional group work)**  
 \_\_\_ **Prefer Mix of 2 Lectures and Group Work once a Week**  
 \_\_\_ **Prefer Mostly Group Work (1 Lecture, Group Work twice a week)**  
 \_\_\_ **Prefer Only Group Work**
10. Any other comments about the class so far?
11. (ungraded) What is a *List*?
12. (ungraded) Define a procedure, **is-list?**, that takes as input any value and evaluates to true if the input value is a List, and false otherwise. For example, **(is-list? 37)**, **(is-list? (cons 1 2))** and **(is-list? (cons 1 (cons 2 3)))** should all evaluate to **false**, and **(is-list? null)** and **(is-list? (cons 1 (cons 2 null)))** should both evaluate to **true**. You may use the built-in procedures **null?** (which takes one input and outputs **true** if that input is **null** and **false** otherwise), and **pair?** (which takes one input and outputs **true** if that input is a Pair, and **false** otherwise).