Lab 1

When you do exercises in the textbook, be aware that the numbering is rather different from the way most textbooks are numbered. In particular, problem numbers don't have anything to do with what section they are in, only the chapter.

- 1. Read the syllabus if you haven't already.
- 2. Do AS&S exercises 1.3 1.5. Wherever a procedure definition is called for, use the lambda notation as I do in class¹.
- 3. Write several sentences explaining the answers to 1.4 and 1.5.
- 4. Why does the first one bomb?

```
> > (sqrt-iter 1 16)
11641533109203575871233/2910382814045846754848
> (sqrt-iter 1.0 16)
4.000000636692939
>
```

5. What other local variables can be eliminated?

```
(define sqrt
 (lambda (x)
  (define sqrt-iter
    (lambda (guess)
        (if (good-enough? guess x)
            guess
            (sqrt-iter (improve guess x) x))))
  (define improve
    (lambda (guess)
        (average guess (/ x guess))))
  (define good-enough?
    (lambda (spam)
        (< (abs (- (square spam) x)) 0.001)))
  (sqrt-iter 1.0 x)))
```

6. Predict the answers for AS&S 1.1, and check your answers with the interpreter.

¹Why do you think I insist on the more awkward notation at the beginning of the course?

Attend lab and work hard, or submit your code file and a script of several well-chosen test cases via MyCourses (due Thursday midnight) and on paper (to your TA's milbox Friday by 1 p.m.) to receive full credit.

When you use MyCourses, remember that you can "upload" files multiple times, but you only click "submit" once.

When your lab is complete, think about how you would implement exercise 1.7.