

91.301, Organization of Programming Languages  
Spring 2010, Prof. Yanco

### Problem Set 9: Streams

Out: Tuesday, 20 April 2010

Due: Tuesday, 27 April 2010

Reading: Section 3.5 of SICP.

Compatibility: For this problem set, you'll need to use the stream.ss file (available on the web site) with DrScheme to have the stream commands. Use the Module language

**Problem 1:** Use `stream-map` (p. 320 of textbook) to define a procedure called `convert-temps` that takes a stream of temperatures in Fahrenheit and returns a stream of converted temperatures in Celsius. Recall that to convert Fahrenheit to Celsius, the equation is  $C = 5/9 * (F-32)$ .

**Problem 2:** Use `stream-filter` (p. 322 of textbook) to define the stream of all integers that are evenly divisible by 2, 3, or 5.

**Problem 3:** Complete the following alternative definition of the integers stream:  

```
(define integers (cons-stream 1 (stream-map <??> integers)))
```

**Problem 4:** Exercise 3.51 on p. 325.

**Problem 5:** Exercise 3.52 on p. 325-326.

**Problem 6:** Exercise 3.53 on p. 330.

**Problem 7:** Exercise 3.54 on p. 331.

**Problem 8:** Exercise 3.57 on p. 332.