

91.301, Organization of Programming Languages  
Spring 2006, Prof. Yanco

### **Problem Set 9: Streams**

Out: Tuesday, 18 April 2006

Due: Thursday, 27 April 2006

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 language "Textual (MzScheme, includes R5RS)."

**Problem 1:** Use `stream-map` (p. 320 of textbook) to define a procedure called `convert-currency` that takes a stream of currency values and returns a stream of converted currencies, based upon the conversion rate passed as a parameter to `convert-currency`.

**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 3.54 on p. 331.

**Problem 7:** Exercise 3.57 on p. 332.