

Problem Set 9: Streams

Out: Tuesday, 29 November 2005

Due: Thursday, 8 December 2005

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-temp-stream` that takes a stream of temperatures in Fahrenheit and returns a stream of corresponding temperatures in Celsius, using the formula: $C = 5/9 * (F - 32)$. Process the stream in two stages: First subtract 32 from each temperature, then multiply the results by $5/9$.

Problem 2: Use `stream-filter` (p. 322 of textbook) to define the stream of all integers that are not divisible by either 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 3.54 on p. 331.

Problem 6: Exercise 3.57 on p. 332.