

**Harvey Mudd College
Computer Science 42
Assignment 5**

Due Wednesday, October 17, by 11:59pm

Midterm announcement: There will be an in-class midterm 30 October, the Tuesday following fall break. This will cover all material up to the fall break. You are allowed one 8.5 x 11 inch reference sheet, but otherwise no books or computers during the exam.

Rokit Features

As you are aware, we are developing in lecture the Rokit language, which has S-expression syntax, similar to Racket. By the end of lecture on October 11, I hope to have shown you how to implement lambda expressions and how they are applied.

Your task is to implement several other features of Rokit:

1. The ***** (MULTIPLY) operator, which multiplies a list of numeric values returning their product. The product of an empty list of numbers is defined to be 1.
2. The **<** (LESSTHAN) operator, which compares two numeric values and returns a Boolean indicating the outcome.
3. A built-in variable **null**, representing the empty OpenList, OpenList.nil.
4. The **null?** Operator, which tests whether its argument is null.
5. The **cons** operator, which does the same thing as in Racket, returning an OpenList.
6. The **first** operator, which does the same thing as in Racket.
7. The **rest** operator, which does the same thing as in Racket.
8. The **let** special form, which has the same syntax and meaning as it does in Racket.

The **let** form will undoubtedly be the most difficult, so you should begin planning it well ahead of coding.

You may use any of the code developed in lecture up to OpenListPhase3, which is found here: <http://www.cs.hmc.edu/courses/2012/fall/cs42/OpenListPhase3.zip>

You may use any development environment you wish, but I strongly suggest using NetBeans, especially if you'd like to get help from me. A second reason is that we will likely do another assignment involving Java graphics. You can download NetBeans free here: <http://netbeans.org/downloads/>