1 Instructions

You should write up and print out your solutions to this assignment, and hand them in at class time, and submit them using Sakai.

NB: (equal? class (or lecture recitation)) \(\rightarrow\) #t

You must work alone on short assignments.

*Cheating is a very* serious issue, and we take it as such; please read over the Course Information and the Duke Honor Code.

You must write and sign a pledge on your assignment, that you acted honestly in completing the assignment.

2 Assignment

The following is an unusual implementation of the square function. Use the substitution model and mathematical induction to prove that if \(n\) is a non-negative integer then the call \(\text{square-int } n\) returns \(n^2\).

\[
\text{(define square-int}
  \begin{array}{l}
  \quad \text{(lambda } ((n <\text{integer}>)) \\
  \quad \quad \text{(if } (= n 0) \\
  \quad \quad \quad 0 \\
  \quad \quad \quad (+ n (- n 1) (\text{square-int } (- n 1)))))))
  \end{array}
\]