CS 230

Short Assignment 5

Mathematical Induction.

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)) → #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 (square-int n) returns n^2.

```
(define square-int
  (lambda ((n <integer>))
    (if (= n 0)
        0
        (+ n (- n 1) (square-int (- n 1)))))))
```