

**CSE 655, Assignment #3**  
**Due: Nov. 21, '11 (No late assignments).**

1. (4 points). Rewrite the following s-expressions using the *list* notation of LISP/Scheme; if it cannot be done for a particular s-expression, explain why not; if it can be done partially, do so as much as possible:

- a. (4 . NIL)
- b. ((3 . NIL) . (4 . NIL))
- c. (3 . ((4 . NIL) . (5 . NIL)))
- d. (3 . (4 . 5))

2. (4 points). Rewrite the following lists using the *dot* notation; if it cannot be done for a particular list, explain why not; if it can be done partially, do so as much as possible:

- a. (7)
- b. (7 8)
- c. (7 (8))
- d. ((7) 8)

3. (4 points). Write down the results for each of the the following function applications; if any of them is erroneous, indicate what the problem is:

- a. CAR[ ( ( ) . 4 ) ]
- b. CDR[ ( ( ) . 4 ) ]
- c. CONS[ (a), (b) ]
- d. NULL?[ CDR[ (a) ] ]

4. (8 points). Define a function, call it 'CHECK' that takes an integer as its first argument, a list of integers as its second argument and returns the count of how many times the first argument appears in the second. Thus:

- CHECK[ 3, (2 0) ] = 0
- CHECK[ 3, (2 3) ] = 1
- CHECK[ 3, (3 1 3) ] = 2

**Important Note:** The second mid-term will be on Wednesday, Nov. 23. Topics for the mid-term will be everything we discuss in class before the exam (and since the first mid-term).