CS 275	**Advanced Programming Techniques in C**	Test 2
Name:	Winter 1998	Max Pts: 46

Important: This is an open book test. You can use any books, notes, or paper. *Do not log into the computer during the test.* Any calculations and rough work can be done on the back side of the test pages. If there is a syntax error in any program segment, just write it down and you will get full credit for the problem. You will lose five points for not writing your name.

1. [5 pt] I am currently working in Bourne shell, *i.e.*, my default command shell is Bourne shell. I want to execute a Bourne shell script, named `foo`, that sets up some environment variables. However, in the script, there are no `export` commands when the variables are assigned. Can I run the script without modifying it (or copying it) so that my current environment is modified. If yes, what is the command. If not, why not.

2. [5 pt] Consider the following set of commands (assume the files being `cat`'d exist in the current directory, and that the current directory is already in my path). `$` followed by a space is the Bourne shell prompt.

```
$ cat foo
export cheese
cheese=american
echo "$0 1: $cheese"
fubar
echo "$0 2: $cheese"
$ cat fubar
echo "$0 1: $cheese"
cheese=swiss
echo "$0 2: $cheese"
$ foo
```

3. [4 pt] Using either `vi` or `emacs`, give the command to replace all occurrences of the word `it` with `this`. Make sure that your command does not replace the substring `it` (such as part of `pit`).

4. [4 pt] How can you restrict the RCS-encoded file `foo` (`foo,v` in RCS) so that only barbara and hls can make changes?

5. [6 pt] Give the `awk` command to print the second and fourth fields of all the lines that contain the pattern `foo` in the file `fubar`. Make sure that you print only those lines which have at least four fields. At the end of the printing of lines, issue a summary message to indicate the number of lines that were ignored because of field width being less than four.

6. [6 pt] I have a file called `foo` that has a problem in line 2 through 4. I want to replace the lines 2, 3, and 4 (the problem lines) with the following two lines:

```
/* I think comment will fix it */
/* Look into it later          */
```

Give me the `sed` command to do this.

7. [16 pt] Create the definition of a class called `box_car` that has three `double` attributes: `length`, `height`, and `width`. The default values for these parameters are 50, 15, and 12, respectively. The member functions include the usual access functions as well as a function to get the volume of the car (by multiplying the three attribute values). Show the declaration of objects of this class by giving at least four examples (to cover all the cases: default or otherwise.