CS 197C
Quiz 4

Due: In Spark, October 7, 2011

Note: These quizzes are designed to be quick reminders of what you learned in class. You should not need to discuss this with your classmates. The lecture notes should be enough to help you finish. Therefore, please complete and turn in your quiz into Spark by yourself.

For the following problems, please refrain from simply writing the code out and compiling it to obtain the answer. The purpose of the exercise is to give you practice in analyzing code; if you just run it, you're only cheating yourself out of the practice.

1. Is there anything wrong with the following declaration? If so, what is it? You may assume `n` is a previously declared integer.

```
int **p = &&n;
```

2. Explain the difference between the following two declarations.

```
double *f();
```

```
double (*f)();
```

3. What is the problem with the following code snippet?

```
float x = 3.14159;
float *p = &x;
short d = 44;
short *q = &d;
p = q;
```

4. Write the code you would use to allocate a 2-D primitive array of `int`s. *Hint:* You will need to use double pointers – pointers that point to pointers.

5. Delete the 2-D array.

6. Name at least two problems you can encounter when dealing with pointers and exposed memory management (i.e. having to allocate/deallocate everything yourself), and propose at least one solution for each problem you name.

7. Determine the value of each of the indicated variables after the following code executes. Assume that each integer occupies 4 bytes and that m is stored in memory starting at byte 0x3fffd00.

```
int m = 44;
int *p = &m;
int &r = m;
int n = (*p)++;
int *q = p - 1;
r = *(--p) + 1;
++*q;
```

(i) `m` (ii) `n` (iii) `&m` (iv) `*p` (v) `r` (vi) `*q`