CprE 185 Exam 2 Fall 2009

Name: _____

Score: _____

Directions:

Answer all questions to the best of your ability. You may use your textbook and notes but the use of laptops and other portable computing devices is prohibited. Please ensure any cell-phone or other alarmed devices are turned off for the remainder of the exam.

Problem 1

Fill in the provided function to make it return the sum of the elements of ***values***. length is the number of elements used in the array values. ***Option*** is true or false in the C convention. *If option is true, still return the sum of the original values, but subtract the sum from each element of values.*

```
float weirdsum(float values[], int length, int option) {




}
```

Problem 2

Given below is a function for computing the dot product of two arrays. The dot product is computed by multiplying each element of the first array with its matching element in the second array and then taking the sum of the products.

Example: dot product of 1,3,5 and 4, -1, 7 is (1*4) + (3*-1) + (5*7) = 36

```
float dot(float a[], float b[], int len)
{
        int i;
        int sum;                            // line A
        for (i =1; i <= len ; i++)          // line B
                {
                sum = sum + a[i] + b[i];    // line C
                }
        return sum;
}
```

As written above, what does dot return if a[] contains 2, 4, 5 and b[] contains -2, -9, 3 and len is 3? You may assume that uninitialized variables or out of bound values contain -1.

Below, correct each of line A, B, and C so that dot operates properly.

LINE A

LINE B

LINE C

Problem 3 Strings

After the code below, **draw a diagram of *a* showing all of its elements and their contents in memory**. If you don't have a way of knowing an element's contents, put a '?' above the element.

```
char a[9] = “MOMN”
char *b;
b= &(a[3]);
strcat(a, "DAD");
```

Diagram b showing its relationship to a.

What would printf("%s", b) display?

Problem 4

Write a function called fib that modifies its two integer output parameters as follows: the first gets the value of the second and the second becomes the sum of the two parameters.

Example of using your function:

```
int a=2; int b=3;
fib(&a, &b);
printf("%d, %d\n", a, b); // Outputs  3, 5
fib(&a, &b);
printf("%d, %d\n", a, b);  // Outputs 5, 8
fib(&a, &b);
printf("%d, %d\n", a, b);  // Outputs 8, 13
```

Problem 5

Complete the function below. It returns the location of a ‘Z’ character in the two dimensional array. It modifies the x and y arguments to indicate the indexes of the array where the ‘Z’ was found. (If two or more elements contain a ‘Z’, x and y should indicate the first one found.) No error checking is needed and you may assume that all 64 elements of the array are initialized. x should refer to the first index and y to the second index, i.e. arr[x][y]. The function should return true if a Z is found, otherwise return false.

```
int zmarksthespot(char arr[8][8], int *x, int *y)

{

}
```