June 19nd, 2015 Quiz 5 – Take Home. Due Monday 29th 10:59am
(late submission policy does not apply)

Total Score __________. Your work is to be done individually. The quiz is worth 50 points and it has 8 questions. Unless a problem directly instructs you differently, there are no known errors within this document. All programming solutions will be implemented in the C programming language. You only need to write the fragment of code that directly answers each question. Unless otherwise specified you do not have to write a full program for any of the questions.

1. [6 pts] Assuming struct Point2D from the class slides is already defined, define a struct that can represent a Triangle.

```c
struct Triangle {
    Point2D A;
    Point2D B;
    Point2D C;
};
```

2. [20 pts] Using the Triangle struct you defined in problem 1, the distance function covered in class, and the corollary of the Pythagorean theorem; define a function that given a Triangle determines if the triangle is right, acute or obtuse (print the result using a printf).

```c
void triangleType(struct Triangle t) {
    float a = distance(A,B);
    float b = distance(A,C);
    float c = distance(C,A);
    float temp = c;
    if( a > c && a > b) {
        c = a;
        a = temp;
    }else if( b > c && b > a) {
        c = b;
        b = temp;
    }
    a *= a;
    b *= b;
    c *= c;
    if( c = a + b) printf("right\n");
    else if( c < a + b) printf("obtuse\n");
    else if( c > a + b) printf("acute\n");
}
```
3. [9pts] Write a full program that prints each one of the parameters it received from command line to the console in separate lines. As example if the compiled program was a.out and someone would type on the UNIX console:

```
$ ./a.out Have a great summer break
```
The output would be:
```
./a.out
Have
a
great
summer
break
$
```

```c
#include <stdio.h>
int main(int argc, char **argv) {
    int i;
    for(i = 0; i < argc; i++) {
        printf("\%s\n", argv[i]);
    }
}
```

4. [15pts] Without using any function declared in <string.h>, create a function that given two character strings returns 1 if the first of the two is longer than the second one, 0 if they are of equal length, or -1 if the second string is longer than the first one. (3 points will be assigned to providing an efficient answer)

```c
int longer(char* a, char* b) {
    int i = 0;
    while( a[i] != '\0' && b[i] != '\0' ) {
        i++;
    }
    if(a[i] == '\0') {
        if(b[i] == '\0') return 0;
        else return -1;
    }else
        return 1;
}
```