Name _____

Test 1 - Functions and Arrays

Instructions:

- Put your name on all pieces of paper at the top right.
- Write neatly keeping your code straight and use proper indentation.
- It is not my job to decipher your answers, it is your job to clearly portray an answer.
- Use pencil only.
- Number your answers and clearly delineate them as well.
- Do not cut off an answer between pages. Plan ahead.
- Keep your answers in order.

1)

Write a function that receives 2, 1D arrays. It sums up the values in both arrays and returns that value. Call your function `sumArrays`

2)

Write a function that will return a confirmation if a "key" (some value) exists in a 2D array and returns that confirmation. Write your function for an array of integers. Name your function `findKey`

3)

Write a function that would print out the following pattern with a parameter of 6:

```
  **
 ****
******
 ****
  **
```

Same call with a value of 8:

```
   **
  ****
 ******
********
 ******
  ****
  **
```

4)

```
struct Stats{
  int min;
  int max;
  double avg;
};
```

Write a function that finds the min, max, and avg of some given array, and returns the calculated values in a struct like the one above. Name your function `aggregateVals`

5)

Write a constructor for the `Stats` struct to initialize its data members with correct values. Pay attention to data types.

6) Write a function that finds the smallest value in a 2D array of ints, and returns the smallest value. Call your function `findMin`

7)

Write a code snippet that would ask a user for a number and then allocate an integer array with the size of the number entered. (snippet means not an entire program, just the code required to answer the question).

Given

```
int a[] = {10, -3, 6, 6, -3, 6,8,10};
```

8)

```
int n = 0;
for (int i=0; i<8; i++) {
  if (a[i] < 0) {
    n++;
  }
}
```

What is `n`?

9)

```
int n;
for (int i=0; i<1; i++) {
  a[i] = a[i]+1;
}
n = a[2];
```

What is n?

10)

```
int n = 0;
for (int i=0; i<8; i++) {
  for (int j=i+1; j<4; j++) {
    if (a[i] == a[j]) {
       n++;
    }
  }
}
```

What is n?