

CS110 – Fall 2015

Problem Set 5 (For practice. Try to do these on paper first, then check them in Processing.)

Name: \_\_\_\_\_

### String Manipulation

1) (10pts) Write a function `frac` that takes an two integers , a numerator and a denominator and returns a float which is the corresponding fraction. For example: `println(frac(1/4))` ; will print 0.25.

2) (18 pts) Write a program that splits the numbers in the given `myNums` String, converts them to floats, and prints them to the console.

```
void setup() {  
    String myNums = "1.2, 2.3, 3.4, 4.5, 5.6";  
  
    // Add your code here  
  
}
```

- 3) (18 pts) Finish the following program, which was designed to count and print the number of duplicate Strings in the myArray String array.

```
// Count and print the number of duplicate strings in myArray
String [] myArray = {"A", "B", "C", "D", "A", "F", "C"};

void setup() {

    int count = 0;

    // Add code here

    println("There are " + count + " duplicates.");
}
```

## Functions and Multidimensional Arrays

- 4) (18 pts) Declare and instantiate a 2D ragged float array that matches the following triangular shape and use a helper function `void fill2d(float[][] fillMe)`, to fill it with random numbers.


## Recursion

- 5) (18 pts) Add a recursive function named `recursiveDigitSum()` to the following program. The new function should compute and returns the sum of the digits in a string `myDigits`.

```
void setup() {  
    String myDigits = "123456789";  
    println( recursiveDigitSum( myDigits ) );  
}
```

## ArrayLists

- 6) (18 pts) Write a short program that (i) creates an ArrayList, (ii) adds to the ArrayList the numbers 0 through 9, (iii) then removes the odd numbers, and (iv) prints out all remaining items in the ArrayList.