CS110 – Fall 20:	15
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.

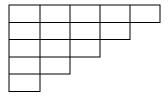
```
// Count and print the number of duplicate strings in myArray
String [] myArray = {"A", "B", "C", "D", "A", "F", "C"};

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.