

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

### String Manipulation

- 1) (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  
  
}
```

- 2) (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

- 3) (10 pts) 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.
- 4) (18 pts) Write a program that declares a 2D ragged float array that matches the following triangular shape and fills 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`.