1. Given three numbers **a, b** (a ≤ b) and **num.** Create an array of evenly spaced numbers by the given **num** length over the specified interval (from **a** to **b).**

Input	Output
1 5 1	[1]
10 100 3	[10, 55, 100]
1 5 6	[1 , 1.8, 2.6, 3.4, 4.2, 5]

2. Given an array of numbers. Find the maximum and minimum elements in array. Calculate their difference and check is there such an element in the array or not.

Input	Output
[1, 10, 2, 9, 2, 3, 9, 4]	true
[1, 4, -43, 12]	false

3. Given an array of numbers. Find the index of the second maximum element.

Input	Output
[23, -98, 0, -456, 12, 8]	4
[-60, 2, 43, -18, 5, -19, 36, 7, 56]	2

4. Given an array of numbers, padding amount and repeat count. Pad the array in the following way: the padding amount specifies how many elements should be taken from the array edges, the repeat amount specifies how many times the pad should be repeated. Also, you should check that *padding amount* < *length of array*

Input	Output
array = [1, 2, 3, 4] padAmount = 1 repeat = 3	[1, 1, 1, 1, 2, 3, 4, 4, 4, 4]
array = [1, 2, 3, 4] padAmount = 2 repeat = 1	[1, 2, 1, 2, 3, 4, 3, 4]

array = [1] padAmount = 1 repeat = 3	[1, 1, 1, 1, 1, 1, 1]
array = [1] padAmount = 2 repeat = 3	“Invalid padding amount”

5. Write a program to check the validity of password input by users.
   Validation:

   - At least 1 letter between [a-z] and 1 letter between [A-Z].
   - At least 1 number between [0-9].
   - At least 1 character from [$#@].
   - Minimum length 6 characters.
   - Maximum length 16 characters.

Input	Output
“12asdf”	“Invalid”
“Aaza1234566#”	“Valid”

6. Write a program to print X star pattern series using loop.

Input	Output
5	

7. Given a string. Split it into words around the spaces and print them in an array. Word can be anything which is string. If there is a sequence of spaces, the result will be empty strings.

Input	Output
“Somewhere over the rainbow”	[“Somewhere”, “over”, “the”, “rainbow”]
“javascript”	[“javascript”]
“ 46778 + !”	[“”, “”, ”46778”, “+”, “!”]

8. Given an array of numbers. Print frequency of each unique number. (Frequency is the count of particular element divided by the count of all elements)

Input	Output
[1, 1, 2, 2, 3]	1: 0.4 2: 0.4 3: 0.2
[4, 4]	4: 1
[1, 2, 3]	1: 0.3333333333333333 2: 0.3333333333333333 3: 0.3333333333333333

9. Print the following number pattern:

   1
   12
   123
   1234
   12345
   1234
   123
   12
   1

10. Given an array of strings and numbers. Print the number of integers and the number of strings in the array.

Input	Output
[1, ‘10’, ‘hi’, 2, 3]	“Numbers: 3, Strings: 2”
[1, 4, ‘i am a string’, ‘456’]	“Numbers: 2, Strings: 2”