



Recursion - 1

Batch: Crux

1. Multiple two numbers m & n using only addition & subtraction. Use Recursion.
2. Count number of zeros in an integer. Use Recursion.
3. Given k find the geometric Sum i.e. $1 + 1/2 + 1/4 + 1/8 + \dots + 1/(2^k)$
4. Use recursion to check if a given String is palindrome or not.
5. Given a string, compute recursively (no loops) a new string where all appearances of "pi" have been replaced by "3.14".

```
changePi("xpix") → "x3.14x"  
changePi("pipi") → "3.143.14"  
changePi("pip") → "3.14p"
```

6. Given a string, compute recursively a new string where all the 'x' chars have been removed.

```
noX("xaxb") → "ab"  
noX("abc") → "abc"  
noX("xx") → ""
```
7. Write a recursive function to convert a String into the number it represents. e.g. for input "1231" you should return integer 1231.
8. Write a function that returns the sum of the digits of an integer.
9. Given two Strings check if one is reverse of the other.
10. Given a string, compute recursively a new string where identical chars that are adjacent in the original string are separated from each other by a "*".

```
pairStar("hello") → "hel*lo"  
pairStar("xxyy") → "x*xy*y"  
pairStar("aaaa") → "a*a*a*a"
```

11. Find a recursive solution to the towers of hanoi puzzle. You don't have to write code for this. Read about towers of hanoi on wikipedia.
12. Return all permutations of a string.