Class 10

Saturday, April 9, 2022 2:08 PM

Recursion

$5! = 5 \times 24 = 120$

$f(n) = n \times f(n-1)$

$f(0) = 1$

```
int getfactorial(int n, int res=1)
line 01 ---> if(n==0) return res;
line 02 ---> return getfactorial(n-1, res*n);
```

5!

f(5,1) = f(4,5) = f(3,20) = f(2,60) = f(1,120) = f(0,120)

f(5) = 5 × f(4)

f(5) = 5 × f(4)

f(4) = 4 × f(3)

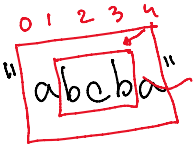
f(3) = 3 × f(2)

f(n, curr) = f(n-1, n × curr)

f(n) = n × f(n-1)

f(7,1) = f(6,7) = f(5,42) = f(4,210) = f(3,840) = f(2,2520) = f(1,5040) = f(0,5040)

string palindrome



isPalindrome(L,R) = (s[L] == s[R]) && (isPalindrome(L+1, R-1))

isPalindrome(0,4) = true && true = true

s[0] == s[4] && s[1] == s[3] && s[2] == s[2]

$x = \sqrt{2+\sqrt{2+\sqrt{2}\ldots}}$

$\Rightarrow x^2 = 2+\sqrt{2+\sqrt{2+\sqrt{2}\ldots}}$

$\Rightarrow x^2 = 2+x$

2 × 2 × 2 × 2 × 2 = 2^5

1 2 5 11 14

subset → 1, 2, 5, 14

f(0)

$\Rightarrow x^2 = 2 + x$

$2 \times 2 \times 2 \times 2 \times 2 = 2^5$

1, 2, 5, 11, 14

1	$^5C_0$
5	$^5C_1$
10	$^5C_2$
10	$^5C_3$
5	$^5C_4$
1	$^5C_5$

2^5

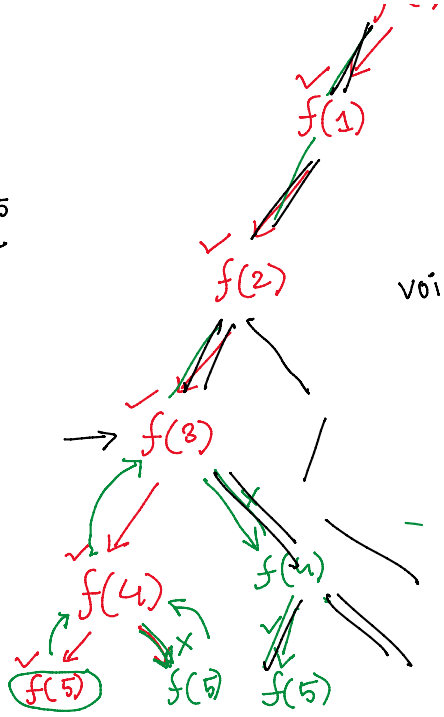
$\{1,5\} \rightarrow 1+5 = 6/3$

1 2 5 11 14

1 2 5 11

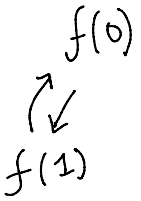
1 2 5 14

1 2 5



1 2 11

void gen -



1 12

2 15

3

4

5

6

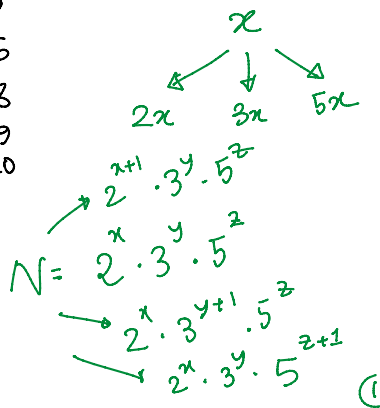
8

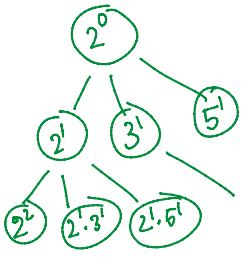
9

10

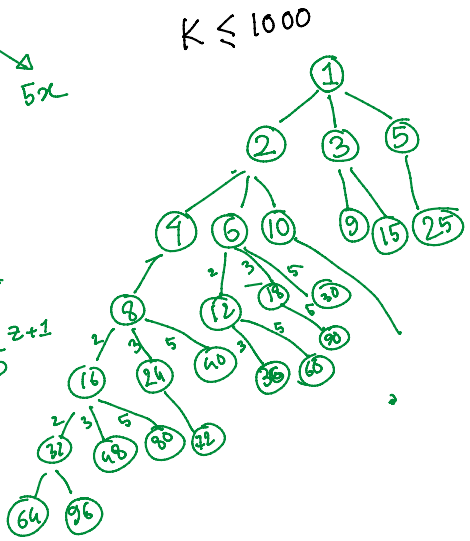
Magic Number

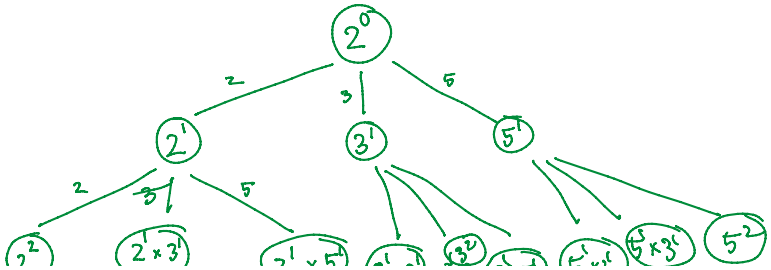
$N = 2^x \times 3^y \times 5^z$ $\quad x, y, z \geq 0$





$K \leq 1000$






2
3
5
2^2
$2^1 \times 3^1$
$2^1 \times 5^1$
$3^1 \times 2^1$
3^2
$3^1 \times 5^1$
$5^1 \times 2^1$
$5^1 \times 3^1$
5^2