

MATHEMATICS

CODEFORGE

25
25
5
25
+25



Number of trailing zeros of $N!$

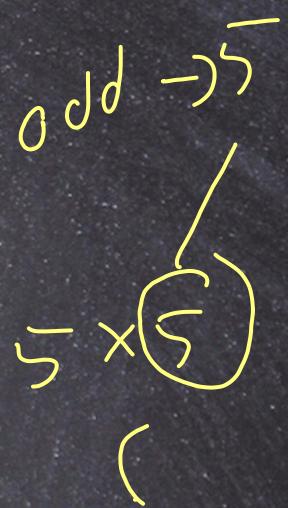
15!

$\rightarrow \frac{1}{5} \log_{10} N$

Eg 5!

$$5! = 1 \times 2 \times 3 \times 4 \times 5$$

$$25! = 1 \dots 5^{\overbrace{5}} \dots 10 \dots 15^{\overbrace{5 \times 3}} \dots 20 \dots 25$$



Input = n
Output = $\{$ count + 1 $\}$ trailing zeros

\rightarrow Pseudo code

int funct(int n) {

int count = 0;

for (int i = 5; n / i ≥ 1; i = i * 5) {

$n = \frac{n}{i}$;

Count++;

}

return root;

}

Eg $n = 25$

initially
 $n = 25$
 $cout = 0$

get - 01
 $n = 25$
 $cout = 5$

get - 02
 $n = 25$
 $cout = 6$

get - 03
 $B_{rep}.$

* $T \propto \log(n)$

~~HCF or GCD~~

what is HCF or GCD?

Ex) $\begin{array}{r} 2, 4 \\ \downarrow \\ 2 \end{array}$ Ex) $\begin{array}{r} 3, 15 \\ \downarrow \\ 3 \end{array}$

→ logic
By using Euclidean algorithm.

) what is Euclidean algorithm.

Ex) $6, 15$
→ $15 \div 6 = 2$
→ $15 - 2 \times 6 = 3$
→ $6 \div 3 = 2$
→ $6 - 2 \times 3 = 0$



$$\text{eg} - a = 6, b = 15$$

initially

$$a = 6, b = 15$$

$$gt - 01$$

$$b = 6 \\ a = 15$$

$$gt - 02$$

$$b = 3 \\ a = 6$$

$$gt - 03$$

$$b = 0 \\ a = 3$$

