Primality Testing -> O(IN) forc(i=1; i ≤ N; i++) $1 \sim N \longrightarrow O(N \sqrt{N})$ if (is Prime (i)) N=106 $NJN = 10 \times 10^3 = 10^9 \sim 10s$ 1, 2.3 is Prime (20) > 10 40 of 1000 0(1) 11), 12, 13), 14, 15, 16, 17, 18, 19) 30, 24, 25, 26, 27, 28, 29, 30, 31)32,38,34,35,36,37,38,39,50. 2 -> multiple x

$$7 \longrightarrow -$$

$$11 \longrightarrow 1$$

$$13 \longrightarrow -$$

$$-0 \longrightarrow -$$

$$+ \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \cdots$$

$$i = 2 \longrightarrow \frac{N}{2}$$

$$i = 3 \longrightarrow \frac{N}{3}$$

$$i = 4 \longrightarrow \frac{N}{4}$$

$$= N\left(\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \dots + \frac{1}{N}\right)$$

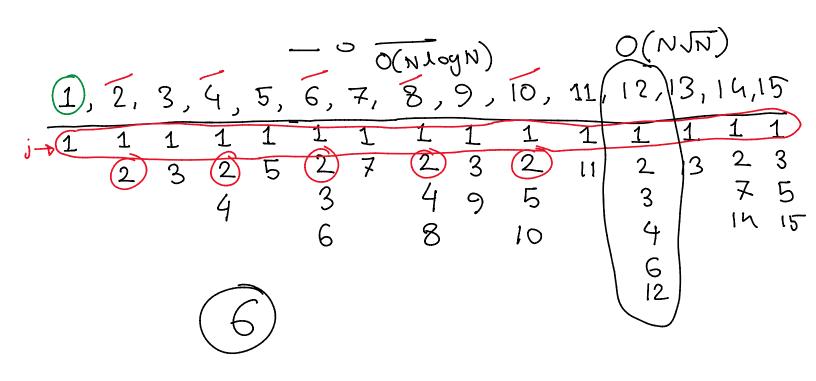
$$= N\left(\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \dots + \frac{1}{N}\right)$$

$$= N \cdot \log N$$

$$2, 3, 6, 7, 11, 13,$$

$$= N \cdot \log N$$

$$-0$$
 $O(NNO)$ $O(NN)$



 $720720 = 2 \times 3 \times 5 \times 7 \times 11 \times 13$

$$(4+1)(2+1)(1+1)(1+1)(1+1)(1+1)$$

 $5 \times 3 \times 16$
 $80 \times 3 \rightarrow 240$

a, az az an as as

logN