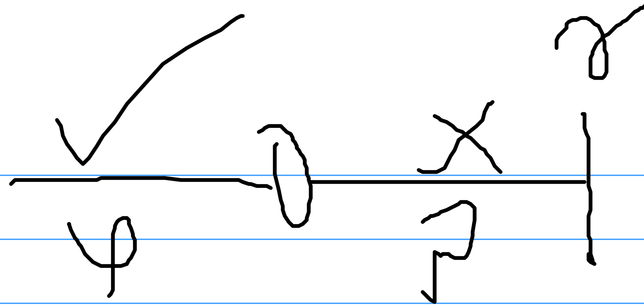


$$C[r] = \sum_{x} [\gcd(x, r) \neq 1]$$

$r = p^a$ $\qquad$ $r = p_1^a p_2^b p_3$

$p, 2p, 3p, 4p$ $\qquad$ $p_1, 2p_1, 3p_1,$

$p_2 \quad 2p_2 \quad 3p_2$

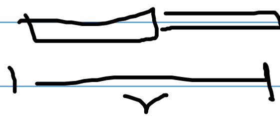
$\vdots$

$p_k \quad 2p_k \quad 3p_k$

— common

$$C[r] = r - \phi(r)$$

$\min(\phi(r), C(r)) \le \frac{r}{2}$



g, k $\qquad$ [1 —— r]

$x \in [1, r]$ $\quad$ cnt[x]

Contri = $cnt[x]^n$

ans = $\sum_{r=1}^{n} \sum_{x=1}^{r} cnt[r, x]^n$

best $O(n^2)$

$\sum \frac{m}{1} + \frac{m}{2} + \frac{m}{3} + \frac{m}{4} \cdots + \frac{m}{m} = m.\log(m)$ Bounded

Fix ? gcd(Ai,K)=gcd(Aj,K) = g

K, g,

Bounded

$K \% g == 0$

How many K's?

g = 1	m/1
g = 2	m/2
g = 3	m/3
g = 4	m/4
..	
g = m	m/m

$\sum = m.\log m$

Fix K, g : get the ans for K, g

1, 2, 3, 4, 5, 6, ... r $\boxed{r = m/g}$

K_1

K % g == 0
Fix K1 iterate over all g's

$K \to [1, m]$

$X\ g\ [1 - \cdots \frac{m}{K}]$

rev loop,

g = 1, 2, 3 ...... $z = \lceil \frac{m}{K} \rceil$

v = K×1, K×2, K×3 ...... K·z

r: $\frac{m}{1}$, $\frac{m}{2}$, $\frac{m}{3}$ ...... $\frac{m}{\lceil \frac{m}{K} \rceil}$

$[1 - \frac{m}{1}]$ $[1 - \frac{m}{2}]$ $[1 - \frac{m}{3}]$ $[1 - \frac{m}{z}]$

$[1 - \sqrt{m}]$

f(K, r)

$\boxed{\text{fst! } 1, 2, \text{---} r \quad (1 \text{—} K-1)\ K\ (K+1 \text{—} r)}$

max amt [l, r] lesser amt

O(n²)

$K \cdot z \le m$

$z \le \frac{m}{K}$

$z = \lceil \frac{m}{K} \rceil$

$\boxed{[K+1 \text{ — } r] \text{ coprime to } K\ ?}$

ap : 12 $\boxed{7 \text{ Prime No's}}$ $2^7 = 128$

$p_1 \quad p_2 \quad p_3 \quad p_4 \quad p_5 \quad p_6 \quad p_7$

$1 - 2 + 3 - 4 + 5 - 6 + 7$