if b value is going to increase :

$\boxed{\left(50^{64^{32}}\right) \bmod (10^9+7)}$ — ①

(a, b) are coprime when $\gcd(a,b)=1$

without 1, there is no common factors.

ETF → Euler totient function.

N → 40 ETF will be, the numbers of coprime with N which is less than 1 from N. shortly,

N → count k such that $1 \le k < N$, k and N coprime

ETF represent by ϕ.

coprime with (5) = 1, 2, 3, 4 → 4 टा.

So, $\phi(5) = 4$

The formula for finding number of coprime,

$$\phi(n) = n \times \prod_{n \mid p} \left(1 - \frac{1}{p}\right)$$

↓

unique numbers of prime

If there is, $n = p \times q \times r$ where p, q, r prime numbers. Then,

$$\phi(n) = n * \left(1 - \frac{1}{p}\right)\left(1 - \frac{1}{q}\right)\left(1 - \frac{1}{r}\right) -$$

for $n = 6$, $6 = 2 \times 3$

$$\phi(n) = 6 * \left(1 - \frac{1}{2}\right)\left(1 - \frac{1}{3}\right)$$

$$= 6 * \frac{1}{2} * \frac{2}{3}$$

$$= 2$$

For, prime number, $\boxed{\phi(n) = n - 1}$

Euler theorm: $(a^b) \% M$, b टा

mod term ~~express~~ ~~kate~~ for mod term expressing, we will use euler theorem.

Euler theorm:

$$a^b \equiv a^{b \bmod \phi(n)} \bmod n$$

$\to$ congruency of number;

$a \equiv b \bmod (n)$: it means if we divide a by n, the remainder will be b.

mod = %

$$a^b = a^{b \bmod \phi(n)} \bmod (n)$$

$$\boxed{(a^b \% n) = \left(a^{b \% \phi(n)}\right) \% n}$$

$$\boxed{(a^b \% M) = a^{b \% \phi(M)} \% M}$$

if n is prime, then,

$$\boxed{\phi(n) = n\left(1 - \frac{1}{n}\right) = (n-1)}$$

For prime M, $\phi(M) = (M-1)$

So, $50^{64^{32}} \% M$

As M is prime number,

So, $\Rightarrow 50^{\left(64^{32} \% M-1\right)} \bmod M$

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করে বাইনারি exponential convert.

After binary exponential, it returns value of M-1.

small value of

50 something integer value % M → second binary exponentials.

a * a → $a = 10^{18}$ greater than. So, it is not possible.

a * a = a + a + a + ... + a times.

example: 5 * 2 = 5 + 5 = 10
means, 5, 2 times addition.