Date .....

Q1) Given three integers n, a, b return nth magical no. since the ans may be very large return it % 10^9+7?

n = 1, b = 3, a = 2

o/p = 2

Q2) A positive integer is magical if the number is divisible by either a or b?

n = 4, a = 2, b = 3 ans = 6

a → a, 2a, 3a, 4a, ---
b → b, 2b, 3b, ---

1, 2, 3, 4, ...

n. divisible by both a and b counted twice subtract them

Multiples of LCM (a, b)

Count magical number ≤ x

Count (x) = $\left[\frac{x}{a}\right] + \left[\frac{x}{b}\right] - \left[\frac{x}{lcm(a,b)}\right]$

if (count(x) ≥ n → x may be ans

search minimum x such that count (x) ≥ n

l = min(a, b) r = n * min(a, b)

Brute force :- O(n * min(a, b))

l = min(a, b)

r = n * (min(a, b))

ab = lcm(a, b)

while (l < r) {

mid = l + (r - l) / 2;

cnt = mid/a + mid/b - mid/ab

if (cnt < n) l = mid + 1

else r = mid

}

return l % mod;

O(log(n * min(a, b)))

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