Name = Bharat
UID = 23BCS13947 __/__/__
Section = KRG-2B

Qo. Given three integer n, a and b return the n^{th} magical. Ans may be very large return 10^9+7.

Solθ-

Approach 1 →

① Take input n, a and b and mod = 10^9+7

② Take two vector veca and vecb and store all multiple of a in veca and ~~vecb~~ into vecb upton

③ Take a set st and store the both ~~integer~~ vector into Set st

④ traverse the loop ~~upto~~ and stop at index n

the n^{th} index value is Answer is store in var Ans

⑤ return the Ans % mod

Approach 2 →

① Take input a, b and n and take variable (i = 1);

② Start a while loop with condition while (true)

③ Inside the loop check condition "if(n%a == 0 || n%b == 0) then decrease n a

④ Inside the condition in step 3

2 and 3

__/__/____

check if (n==0) then simply break;

(5) on every iteration increase the value of i by +1

(6) if when loop stop the ith is the number

(7) Return i%mod;

2,3,4,6,8,9,10,12,14,15,16,18,20,21

Approach = 3 O(logn)

(1) Take input a, b, and c and mod = 1e9+7

(2) Take the LCM of both and store in var lcm = LCM(a,b)

(3) Take variable high = min(axn, bxn);

(4) take low = 0;
int total = -1;

(5) Start while loop condition while low < high.

(6) Take mid of low and high

(7) take int da = mid/a
int db = mid/b
int dm = mid/lcm
total = da+db-dm
if (total == n) break;
if (total < n) low = mid;
else high = mid

Ans when loop stop total%mod = Ansuer