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Q Given n, a, b. find the n^{th} magical number. A number x is magical if it is divisible by either a or b.

```
# include <bits/stdc++.h>
Using namespace std
# define ll long long
# define mod 1000000007
int main() {
int a, b, n;
cin >> n;
cin >> a >> b;
ll s = min(a,b), e = n* 1LL * min(a,b), mid, l=lcm(a,b);
while ( s < e) {
    mid = s+(e-s)/2;
    int cnt = mid/a + mid/b - mid/l;
if (cnt < n)
    s = mid + 1;
else
    e = mid;
```

```
ans = ans % Mod;
cout << n << "th magical number is " << ans;

return 0;

}
```

Output:

	n	a	b
①	4	2	3

→ 4th magical number is 6

	n	a	b
②	1	2	3

→ 1th magical number is 2

T.C → ~~O((log(n) * min(a,b)))~~ O(log(n*min(a,b)))

S.C → O(1)