

Integral Array

Let's consider $x, y \in a$ and $r \notin a$. If $y \cdot r \leq x < y \cdot (r + 1)$ then $\left\lfloor \frac{x}{y} \right\rfloor = r$, but r is not in a , so the answer is "No". Let's suggest that y and r are already given. We can check if there exists such $x \in a$ from the mentioned segment in $O(1)$. It is done by considering array cnt_x — the amount of occurrences of x in a , and prefix sums for that array. Now we only need to run this check for each r and y . To do that we can iterate through all $r \notin a$ and $y \in a$ in increasing order. If $r \cdot y > c$ then there is definitely no such x so we can consider the next r . This optimization speeds up the process and makes the whole solution work in $O(C \log C)$.