Bit Soccer

Time limit: *500 ms*
Memory limit: *256 MB*

Peredo is a computer scientist who loves soccer. His favorite soccer player is Paolo Guerrero, one of the best Peruvian players, and his favorite team is the Brazilian national team.

He has a very large database of players with videos, photos, and many statistics related to their performance in hundreds of games. He uses his database to compute a binary **performance index** that tracks the players' abilities across 40 possible game metrics.

The **performance index** represents all possible soccer abilities of each player with a 0 for a lack of ability in a given game metric and a 1 for perfect ability, with no fractions in between 0 and 1.

Based on these numbers, Peredo created a simulation game that takes the **performance indices** and combines multiple players to form a **team performance index**.

The **team performance index** is such that if a single player has a 1 in a given metric then the **team performance index** also has a 1 in that metric.

You are given a list of players in your **roster** represented by their **performance indices** in decimal format and your tasks is to combine a subset from your **roster** to form your **starting team** and to obtain a specific **team performance index**. There is no limit to the number of players that can form the **starting team**.

As an example, simplifying with just 4 game metrics, if we have two players on our **starting team** with **performance indices** 5 `(0101)` and 3 `(0011)` the resulting **team performance index** will be 7 `(0111)`.

Standard input

The first line of the input contains an integer N denoting the number of player available in your **roster**. The second line contains N integers P_i, denoting the **performance indices** of each player. The third line contains an integer Q, denoting the number of queries, and each of the next Q lines contains an integer G that represents the goal **team performance index**.

Standard output

For each query, print `YES` if it is possible to select a **starting team** from the **roster** and obtain the **team performance index** G, otherwise print `NO`.

Constraints and notes

- $1 \le N \le 10^5$
- $1 \le Q \le 20$
- $1 \le P_i, G \le 2^{40} - 1$

Input	Output	Explanation
5 10 3 5 8 6 2 7 4	YES NO	In the first query, we can obtain 7 by selecting the players with **performance indices** 3 and 6. There is no way to obtain a **team performance index** of 4.