Canteen

Like often before, mouse Timon has to stand in a long queue in the canteen (called Mensa) to get his well-deserved lunch.

He is bored and looks at his N coins and wonders whether he can pay the menu of M centimes precisely.

But this was much too simple and he asks himself a trickier question: Is it possible to pay the M centimes precisely without using the i-th coin? He asks this question for each $1 \leq i \leq N$.

Input

On the first line, N and M are given.

The second line contains N numbers m_i, the values of the coins of mouse Timon.

Output

Print N lines, each either `YES` or `NO`; the i-th line should answer the question whether he can pay M centimes without the i-th coin.

Limits

There are 2 groups of tests, each worth 50 points.

- In group 1, we have $N, M \leq 100$ and all coin values are smaller than 100.
- In group 2, we have $N \leq 1000$, $M \leq 10\,000$ and all coin values are smaller than 10 000.

Examples

Input	Output
9 620 500 200 200 200 20 20 20 20 20	YES NO NO NO YES YES YES YES YES

Mouse Timon got in his briefcase one five franc coin, three two franc coins and five twenty centime coins. The only way of paying the menu of 6.20 is to use the three two franc coins and any single one of the twenty centime coins.

Input	Output
9 670 50 100 200 500 10 200 10 200 20	NO YES YES YES YES YES YES YES YES

He needs the fifty centime coin, but all other coins can be replaced.