Divide Polygon

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	1024 megabytes

You are given a positive integer N and a set of integers $S = \{S_1, S_2, \ldots, S_M\}$ of size M.

For each $k = 0, 1, \ldots, N-3$, answer the following question.

Consider a regular N-gon whose vertices are labeled $1, 2, \ldots, N$. Draw exactly k diagonals so that no two diagonals intersect except possibly at their endpoints. As a result, the regular N-gon is divided into $k+1$ polygons. Let $e_1, e_2, \ldots, e_{k+1}$ be the numbers of sides of these resulting polygons.
We say that a way of drawing k diagonals is a **good way** if it satisfies the following condition:

- All of $e_1, e_2, \ldots, e_{k+1}$ are contained in the set S.

Compute the number of **good ways** to draw k diagonals, modulo 998244353.

Input

The input is given in the following format:

N M
S_1 S_2 $\ldots$ S_M

- All input values are integers.
- $3 \leq N \leq 10^5$
- $1 \leq M \leq N-2$
- $3 \leq S_i \leq N$
- $S_i < S_{i+1}$

Output

Output $N-2$ lines. For $i = 1, 2, \ldots, N-2$, output on the i-th line the answer corresponding to $k = i-1$.

Examples

standard input	standard output
5 2 3 4	0 5 5
4 1 4	1 0
16 7 3 4 6 7 9 12 16	1 24 544 14280 120156 829464 3372120 10914816 24515700 40532624 52300160 42493880 17383860 2674440

Note

In the first example, when $k = 0$, we always have $e_1 = 5$. Since 5 is not contained in S, the answer is 0.

When $k = 1$, we always have $\{e_1, e_2\} = \{3, 4\}$, and both values are contained in S. There are 5 ways to draw one diagonal in a regular pentagon, so the answer is 5.

When $k = 2$, we always have $e_i = 3$ $(1 \leq i \leq 3)$. There are 5 ways to draw two non-intersecting diagonals in a regular pentagon, so the answer is 5.