Problem H. Hill

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	256 mebibytes

Having stocked up with snowballs, Zenyk and Marichka already wanted to start a game.

But suddenly, Zenyk thought that throwing snowballs on a flat surface is boring. He wanted to build as high as possible hill for himself to climb at it and throw snowballs at Marichka.

Building of a hill isn't easy. Zenyk treated it seriously, took a sheet of paper with coordinate axes, where y-axis is directed upwards, and began to draw the cross section of a hill (a front view).

Marichka doesn't want the hill to be too high, so she imposed some constraints at its section.

1. Section must be a polygonal chain.
2. The chain must start at point (x_0, y_0) and end at point (x_n, y_n).
3. The chain must contain n segments.
4. The length of the i-th segment should be l_i.

Zenyk wants to know the maximum height he of a hill he can make under these constraints, and asks you the maximal y-coordinate of the hill's section. Help him find it.

Input

The first line contains four integers x_0, y_0, x_n, y_n ($|x_0|, |y_0|, |x_n|, |y_n| \le 10^6$) – coordinates of start and end of the chain.

The second line contains an integer n ($1 \le n \le 10^5$) — number of segments in the chain.

The third line contains n integers $l_1, \ldots, l_n$ ($1 \le l_i \le 10^6$) — lengths of the segments.

Output

If there is no hill that satisfies these constraints, output "`IMPOSSIBLE`".

Otherwise, output one real number — the maximum y-coordinate of the highest point. The answer will be considered correct if its absolute or relative error doesn't exceed 10^{-7}.

Examples

standard input	standard output
2 3 8 3 2 5 5	7.0000000000
4 7 44 77 4 4 7 7 4	IMPOSSIBLE