

## Problem J. Jumping Path

Input file: standard input  
Output file: standard output  
Time limit: 2 seconds  
Memory limit: 64 megabytes

Popeye the Sailor loves to eat spinach. He also loves to smoke his corn-made pipe. And which he constantly smokes.

Popeye lives in the Sweethaven village. On the main street of Sweethaven, which can be represented as a straight line, there are  $n$  public places, which can be considered as points on a straight line located at coordinates  $x_1, x_2, \dots, x_n$ , respectively.

Popeye needs to get from the  $A$  point on the main street to the  $B$  point. Everything would have been simple, if not for the law that passed Sweethaven's authority: now smoking nearer than  $r$  from a public place is prohibited. Fortunately, Popeye has a pole length  $R \geq r$ , with which he can jump over forbidden zones.

Popeye is initially located at point  $A$ . He can move from  $x$  to  $y$  on foot in  $|x - y|$  time. Also, at any time, he can use the pole and move from point  $x$  to point  $x + 2R$  or  $x - 2R$ , moving along a semicircle of radius  $R$ , while he spends  $\pi R$  time. At the end of the path, Popeye must be at point  $B$ , and at no point on the trajectory of Popeye can be closer than  $r$  to any public place.

Determine the shortest time it takes Popeye to get from  $A$  to  $B$ . Or determine that it is impossible to get from  $A$  to  $B$  under the given constraints, so Popeye will have to use the power of spinach.

### Input

The first line contains five integers  $n, r, R, A$  and  $B$  ( $1 \leq n \leq 500, 1 \leq r \leq R \leq 10^6, -10^9 \leq A, B \leq 10^9$ ). The second line contains  $n$  integers  $x_1, x_2, \dots, x_n$  ( $-10^9 \leq x_i \leq 10^9, 1 \leq i \leq n$ ). All  $x_i$  are pairwise distinct. It is guaranteed that the points  $A$  and  $B$  are different and are not located in any of the forbidden zones.

### Output

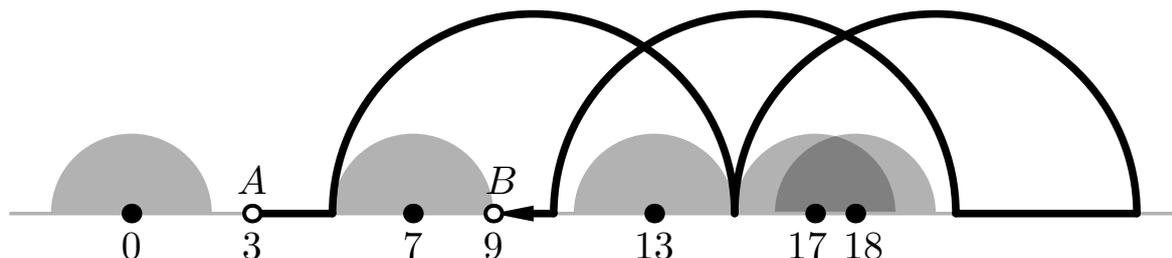
Print one real number — the smallest time. The answer will be counted if it differs from the jury's answer by no more than  $10^{-6}$  in absolute or relative value. If it is impossible to get from  $A$  to  $B$ , print  $-1$ .

### Example

standard input	standard output
5 2 5 3 9 13 0 17 7 18	55.1238898038

### Note

For an example from the statement, one of the optimal trajectories of movement looks as follows:



Elapsed time —  $8 + 15\pi$ .