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## Problem A. Way via mountains (small limits)

Input file: `stdin`  
Output file: `stdout`  
Time limit: 2 seconds  
Memory limit: 64 megabytes

The highlands' surface can be presented as a polygonal chain with vertices at the points  $(x_1, y_1)$ ,  $(x_2, y_2)$ ,  $\dots$ ,  $(x_N, y_N)$ , moreover  $x_i < x_{i+1}$ . Ordinary mountain's magus staying at  $(x_1, y_1)$  wants to move to the point  $(x_N, y_N)$ . He can move only afoot. He can walk on the surface of the Earth (along the polygonal chain). However, he also can create a bridge in the air and walk through it. The bridge can connect two vertices of the polygonal chain: the bridge should start and finish in some vertices of the polygonal chain and the bridge can't go underground (so it shouldn't form a tunnel in the mountain), but some points or segments of the bridge can touch the surface of the earth. The bridge can't be longer than  $R$ . Magus can't build more than  $K$  bridges. After passing a bridge, it disappears in the air. What the minimum distance magus should pass to move to the point  $(x_N, y_N)$ ?

### Input

The program should read firstly positive integer  $N$  ( $2 \leq N \leq 42$ ); then a positive integer  $K$  ( $1 \leq K \leq 23$ ) — the maximum number of bridges; then an integer  $R$  ( $0 \leq R \leq 10000$ ) — maximum possible length of the bridge. Next, the coordinates  $(x_1, y_1)$ ,  $(x_2, y_2)$ ,  $\dots$ ,  $(x_N, y_N)$ . All coordinates are integers and aren't exceeding 10000 by absolute value.  $x_i < x_{i+1}$  is true for all  $i$  from 1 to  $N-1$ .

### Output

The program should print a single number — the minimum length of path magus have to pass (both on the ground and through the bridges). Print answer to within 6 digits after the decimal point.

### Examples

stdin	stdout
5 2 5 0 0 2 2 3 -1 4 1 5 0	6.4787086646190746