Problem J
SENSORS
Time limit: 3 seconds

An attacker is trying to enter military zone B from village A. However, village A and military zone B are separated by a valley, which is guarded by a set of N turnable camera sensors. The range of sensing of each sensor is a circle represented by a pair (P, R) where P is the location of the sensor, R is the sensing radius of the sensor. R is set to 100 meters. Thus, depending on the locations of the sensors, it may be possible to pass the valley safely, keeping the distance to the closest sensor strictly larger than 100 meters at any moment.

The attacker asks you to write a program that, given the width W and the length L of the valley and the coordinates of every sensor, first determines whether the attacker can pass the valley unnoticed. If this is impossible, then the attacker wants to know the minimum number of sensors that must be destroyed to pass the valley safely.

Input

The first line contains three integers L, W, and N ($1 \leq W \leq 50000$, $1 \leq L \leq 50000$, $1 \leq N \leq 250$). Each of the following N lines contains a pair of integers X_i and Y_i – the coordinates of i-th sensor ($0 \leq X_i \leq L$, $0 \leq Y_i \leq W$). The coordinates are given in meters relative to the valley: the southwestern corner of the valley has coordinates $(0, 0)$, and the northeastern corner of the valley has coordinates (L, W), as seen in the picture. Note that passing the valley may start at coordinate $(0, y_s)$ for any $0 \leq y_s \leq W$ and end at coordinate (L, y_e) for any $0 \leq y_e \leq W$. Neither y_s nor y_e need to be integer.

Output

Print the minimum number of sensors that must be destroyed for the attacker to pass the valley safely. If the attacker can pass without any destruction, the program should print 0.

Sample Input	Sample Output
200 350 5 0 50 200 350 100 200 39 93 123 321	1