2011 Canadian Computing Competition
Day 2, Problem 3
Biggest (Zero Carbon) Footprint

Input: from standard input
Output: to standard output
Source file: `bigfoot.{c,cc,pas}`

Problem Description
Having just recently won the lottery, you decide to build a summer resort nestled deep in a forest. However, being a very eco-friendly person, you decide not to cut down any of the trees that grow in the forest. Given a map of the forest and the positions of its trees, determine the area of the largest rectangular plot you can buy that does not contain any of the trees. (Note that your plot must have edges which are parallel to the x and y axes.)

Input Specification
The first line contains n, m, and t ($0 < n, m < 10,000$, $0 < t < 10,000$) representing the dimensions of the given map of the forest and the number of trees indicated on the map respectively. The next t lines each contain two integers x and y ($0 \leq x \leq n, 0 \leq y \leq m$) describing the location of each tree (where $(0, 0)$ is the bottom leftmost point on the map and (n, m) is the top rightmost point on the map).

Note: for 20% of the marks for this question, you may assume that $t \leq 100$, and for 45% of the marks for this question, $t \leq 400$.

Output Specification
Output the area of the largest rectangle that does not contain any of the given trees.

Sample Input
```
5 5 2
1 1
3 3
```

Output for Sample Input
```
12
```

QOJ adaptation notes

The original statement writes strict upper bounds n, m, t < 10,000, but official cases include values equal to 10,000. This judge preserves those official cases; use the inclusive bounds n, m, t <= 10,000. Trees on the boundary of the selected rectangle are permitted, as required by the official sample and data; the open interior must contain no tree. The original statement page remains unchanged.

Full score: 25. Official test files are preserved unchanged. Subtasks follow the explicitly stated partial-credit constraints and percentages. Tests meeting overlapping bounds are assigned to the first matching group; the remaining marks cover the unrestricted group.