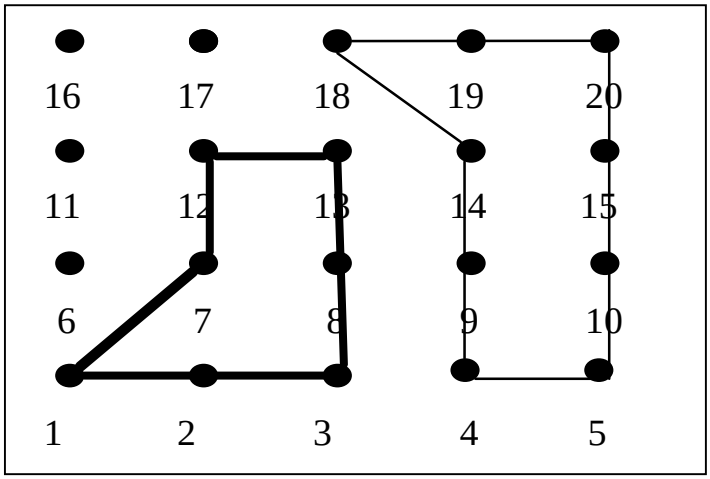
ACSL

2005 - 2006 **American Computer Science League** **All-Star #7**

ACSL Area



PROBLEM: In this program you will be given a grid of points and will be asked to find the area of the largest polygon the can be formed without intersecting a given polygon. The number 1 will always label the bottom left hand point of the grid. You will be given a path that connects the points in order and that forms a polygon. Note that in a polygon the segments can only intersect at their endpoints. The area of each single rectangle is 1 square unit. The area of the polygon on the left is 2.5 and of the polygon on the right is 3.5. Note that non-vertical and non-horizontal segments can only go from one column or row to the next column or row. That is, a segment from point 14 can't be drawn to point 17 or point 16. Segments could be drawn from 1 to 7 and then from 7 to 13.

INPUT: There will be 10 input lines. The first integer on each line will give the number of points in each row. The second integer will give the number of rows. The third integer will be the number of point numbers to follow. These integers will be the point numbers, in order, to be connected to form the polygon. The last point and the first point always connect. The input for the figure above is in Sample Input #1.

OUTPUT: For each input line, print the area of the largest polygon (concave or convex) that can be drawn without intersecting the given polygon.

SAMPLE INPUT	**SAMPLE OUTPUT**
1. 5, 4, 7, 1, 2, 3, 8, 13, 12, 7	1. 3.5
2. 4, 4, 8, 1, 5, 9, 13, 14, 10, 6, 2	2. 3
3. 3, 3, 4, 1, 4, 5, 2	3. 0.5
4. 4, 4, 4, 1, 5, 6, 2	4. 5.5
5. 4, 3, 8, 1, 5, 6, 7, 8, 4, 3, 2	5. 0