PROBLEM 3
N rectangles of different colours are superposed on a white sheet of paper.
The
sheet's sizes are: a cm wide and b cm long. The rectangles are put with
their
sides parallel to the sheet's borders. All rectangles fall within the borders
of the
sheet. As result, different figures of different colours will be seen. Two
regions
of the same colour are considered to be part of the same figure if they have
at
least one point in common; otherwise, they are considered different figures.
The
problem is to calculate the area of each of these figures. a, b are even
positive
integers not greater than 30.

The coordinate system considered has origin at the sheet's center and the
axes
parallel to the sheet's borders:

Different data sets are written in an ASCII input file, RECTANG.DAT:
a, b and N will be in the first line of each data set, separated by a blank
space.
•   In each of the next N lines you will find:
•   the integer coordinates of the position where the left lower vertex of
the rectangle was put.
•   followed by the integer coordinates of the position where the upper
right vertex of the rectangle was put
•   and, then, the rectangle's colour represented by an integer between 1
and 64. White colour will be represented by 1.

The order of the records corresponds to the order used to put the rectangles
on the
sheet. Different data sets will be separated with a blank record.

Write a program to:
1.   Read the next data set from RECTANG.DAT
2.   Calculate the area of each coloured figure
3.   Write in an ASCII output file, RECTANG.SOL, the colour and the area
of each coloured figure as shown in the example below. These records will
be written in increasing order of colour. The solutions to different data
sets
will be separated by a blank record.

Example:
RECTANG.DAT   RECTANG.SOL
20 12 5   1 172
-7 -5 -3 -1 4   2 47
-5 -3 5 3 2   4 12
-4 -2 -2 2 4   4 8
2 -2 3 -1 12   12 1
3 1 7 5 1

30 30 2   1 630
0 0 5 14 2   2 70
-10 -7 0 13 15   15 200