Lawn-mowing Robots

A well known company in Silicon Valley has developed a new lawn-mowing robot. Unfortunately, the battery is not quite perfect, therefore every model also comes with three photo-voltaic charging stations that are used to reload the battery.

You have bought such a robot and want it to mow your rectangular lawn, which is subdivided into cells and looks like a grid. You have installed the charging stations at three of the grid cells, and their position cannot be changed.

To prevent the grass from developing ugly marks and stripes, you want to program your robot in such a way that it uses a different mowing pattern every day. In every such pattern, the robot should visit every grid cell only once and it should stop at the charging stations after a $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ fraction (rounded down) of the whole way. The robot is quite a new product with a few strange quirks and has to visit its loading station exactly in a given order.

Input:

The input begins with a line containing two integers r and c, where $2 \leq r, c \leq 8$, specifying the number of rows and columns, respectively, in the grid. This is followed by a line containing six integer values r_1, c_1, r_2, c_2, and r_3, c_3, where $0 \leq r_i < r$ and $0 \leq c_i < c$ for $i = 1, 2, 3$. These are the positions of the three charging stations.

Output:

Print the number of possible tours that begin at row 0, column 0, end at row 0, column 1, and visit row r_i , column c_i at time $\lfloor \frac{i}{4} \cdot r \cdot c \rfloor$ for $i = 1, 2, 3$.

Sample Input 1:

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3 6
2 1 2 4 0 4
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Sample Output 1:

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2
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Sample Input 2:

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4 3
2 0 3 2 0 2
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Sample Output 2:

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0
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