Consider ways to place colored markers on an $n \times m$ grid so that no two pairs of markers of the same color have the same distance between them.

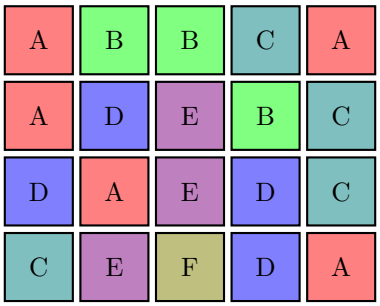

Figure 1: This arrangement has 6 different colors of markers. There are 5 red (A) markers and no valid way to place 6 red markers.

Question. What is $c_{n\times m}$ the greatest number of markers of a given color can be placed on the $n \times m$ grid?

Related.

1. How many colors of markers are required to fill the grid?
2. What if this is done on the d_1, d_∞, or d_3 metric?
3. What if this is done on a triangular or hexagonal grid?
4. What is the smallest board that can contain k markers?

Note. $c_{n\times m}(c_{n\times m} - 1)/2 \leq A301853(n, m) - 1$.

References.

Problem 30.

`https://oeis.org/A301853`