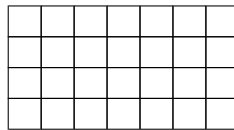# HOMEWORK #2

ASSIGNED: JANUARY 15, 2020; DUE: JANUARY 29, 2020

Create a rectangle of width m and of height n of squares and the total number of smaller squares in the rectangle is equal to $n \cdot m$. For example in the picture below, the grid is 7×4.

The rectangle above also contains 18 2×2 squares, 10 3×3 squares and 4 4×4 squares.

Question 1: For each k that is between 1 and the minimum of m and n, how many $k \times k$ squares are in the rectangle?

Question 2: What is the total number of squares that one can find in a $n \times m$ rectangle?

A full answer to this question will have a formula which one can calculate quickly given n and m (even for n and m very large).