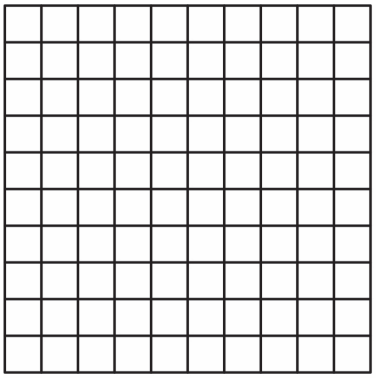
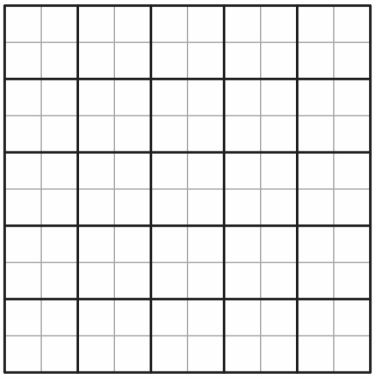
Covered with Squares

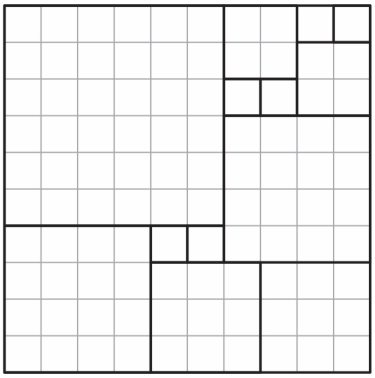
As shown below, a square grid with 100 smaller squares can be covered by 100 squares (each measuring 1 × 1), by 25 squares (each measuring 2 × 2), or by 13 squares (one 6 × 6, two 4 × 4, two 3 × 3, two 2 × 2, and six 1 × 1).



100 Squares



25 Squares



13 Squares

Find all values of *n* for which it's impossible to cover a 10 × 10 grid with *n* squares of integer side length.

MJ4MF – ONE-HUNDRED PROBLEMS

It's Gettin' Kinda Heavy

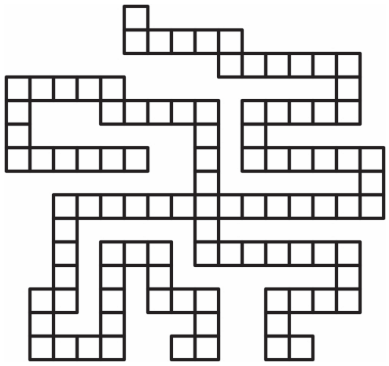
Which weighs more: $100 worth of quarters, or $100 worth of dimes?

Why, Certainly

For what value of n can you be certain that n consecutive positive integers have a product that is divisible by 100?

Around the Square

The figure below consists of 100 unit squares, and adjacent squares share a side. What is the perimeter of the figure?



Magic Rectangles

A magic rectangle is an $m \times n$ array of the positive integers from 1 to $m \times n$ such that the numbers in each row have a constant sum and the numbers in each column have a constant sum (although the row sum need not equal the column sum). Shown below is a 3×5 magic rectangle with the integers 1 to 15.

6	7	8	9	10
13	3	1	11	12
5	14	15	4	2

How many magic rectangles can be made using the integers 1 to 100?

*These problems appear in **One-Hundred Problems Involving the Number 100**, available from NCTM. If you're interested in the other 95%, click the link below:*

https://www.nctm.org/Store/Products/One-Hundred-Problems-Involving-the-Number-100/

MATH JOKES 4 MATHY FOLKS