C2/2016

Let $1 = d_1 < d_2 < \cdots < d_K = n$ be the divisors of $n$.

Let the table be $a \times b$. thus, $a \cdot b = K$. S.P.G, $a \geqslant b \Rightarrow a \geqslant \sqrt{K}$.
$b \leqslant \sqrt{K}$

The numbers $d_K, d_{K-1}, d_{K-2}, \cdots, d_{K-a+1}$ ($a-1$ numbers) occupy, at most, $a-1$ rows. Then, there's a row without those numbers.

The sum of those $b$ numbers in that row is, at most,

$$d_{K-a} + d_{K-a-1} + \cdots + d_{K-a-b+1} \overset{⊛}{\leqslant}$$

$$\overset{⊛}{\leqslant} b \cdot d_{K-a} \overset{⊛}{\leqslant} a \cdot d_{K-a} \overset{⊛}{\leqslant} d_a \cdot d_{K-a} = n.$$

But the row that contains $n$ has sum at least $n$.

Thus, the sum on each row is $n$. $\Rightarrow a = 1$ and inequalities ⊛ hold equality.

$\Rightarrow a = b = 1 \Rightarrow \boxed{n = 1}$

$n = 1$ works!

$\boxtimes$