Let $B$ denote a box in 3-space. Suppose $B$ can be partitioned into a finite number of smaller boxes such that each of the smaller boxes has at least one dimension of integer length. Show that $B$ must have at least one dimension of integer length.

[Note + Hint: There are perhaps numerous ways to approach this tricky puzzle, but let me suggest one which involves a little multi-variable calculus: consider integrating a suitable function over $B$]

Solutions should be submitted to Morgan Sherman:

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before next Friday. Those with correct and complete solutions will have their names listed in next week’s email announcement. Anybody is welcome to make a submission.