Pallet Loading

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Problem 55 from The Open Problem Project: http://maven.smith.edu/~orourke/TOPP/
The Problem

Given two pairs of numbers, \((A, B)\) and \((a, b)\), and a number \(n\), decide whether \(n\) small rectangles of size \(a \times b\), in either axis-parallel orientation, can be packed into a large rectangle of size \(A \times B\).
The Problem

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The Question

What is the complexity of the pallet loading problem?
Claims

W. B. Downsland: Two and three dimensional packing problems and solution methods, NZOR 13 (1), 1985, pp. 201-205.

Erroneously claims that the problem is NP-complete.
Claims


"Erroneously" claims that the problem is NP.

Shows that the problem is between $\Omega(2^n)$ and EXPSPACE, using the following proof:

For $n$ rectangles, decide horizontal or vertical orientations. Then, move the rectangle as low as possible. Then move the rectangle as far left as possible.

This obtains $2^n$ potential packings, but does not count "wiggle room" shifting in either x or y.
Claims


Extends a previous paper they wrote which shows that any (A*B)/(a*b) < 101 can be represented by 3,080,730 equivalence classes and solves the optimal solution for each, but does not solve the whole problem.