

Carpet into Box

There is a carpet of a size $a*b$ [length * breadth]. You are given a box of size $c*d$. The task is, one has to fit the carpet in the box in a minimum number of moves.

In one move, you can either decrease the length or the breadth of the carpet by half (floor value of its half).

Note: One can even turn the carpet by 90 degrees any number of times, wont be counted as a move.

Example 1:

Input:

A = 8, B = 13

C = 6, D = 10

Output:

Minimum number of moves: 1

Explanation:

Fold the carpet by breadth, $13/2$ i.e. 6, so now carpet is $6*8$ and can fit fine.

Example 2:

Input:

A = 4, B = 8

C = 3, D = 10

Output:

Minimum number of moves: 1

Explanation: Fold the carpet by length , $4/2$ i.e. 2,

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so now carpet is 2*8 and can fit fine.
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Your Task:

You don't need to read input or print anything. You only need to complete the function **carpetBox()** that takes an integer A, B, C and D as input and returns an integer denoting the minimum numbers of moves required to fit the carpet into the box.

Expected Time Complexity: $O(\max(\log(a), \log(b)))$.

Expected Auxiliary Space: $O(1)$.

Constraints:

$1 \leq A, B, C, D \leq 10^9$