H - Hip To Be Square

None of the numbers 6, 10, 15 is a square, but their product, the number 900, is a square. We are interested in sets of positive integers, the product of which is a square. We call such a set HIP (this stands for Has Interesting Product). Evidently $\{6, 10, 15\}$ is HIP, and so is $\{25\}$.

More generally, given a set of positive integers, does it have a non-empty subset which is HIP, and if so, for which of the HIP subsets will the product be minimal?

To make things slightly easier for you, we restrict our attention to intervals.

Input

Each test case consists of two integers a and b on a single line ($1 < a < b \leq 4900$). These integers describe the interval $A = \{ x \in \mathbb{N} \mid a \leq x \leq b \}$.

Output

For each test case, print the least number k such that the product of the elements of some non-empty subset $X \subseteq A$ equals k^2. If no such number exists, print '`none`'. The number k will be less than 2^{63}.

Example

input	output
20 30 101 110 2337 2392	5 none 3580746020392020480

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