Trip To Thailand | CodeChef

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Three friends were going on a trip to Thailand. During their journey in flight, they were reading about a special type of function called Panda function. Panda function **P(X)** of a number **X** gives the count of positive integers less than than equal to **X** which divide it. Now, the air hostess saw what they were doing and decided to pose a problem to them.

She gives them two **square free** positive integers **n** and **k**, and she asks them to compute

$$\mathrm{P}(\mathrm{n}^{P(k)})$$

Since, the three friends are always greedy for speed, they sought out your help.
You are required to give the answer to the question and help them impress the air hostess.

Input

- The first line of the input contains an integer **T** denoting the number of test cases.
- The first line of each test case contains two space separated integers **n** and **k**

Output

- For each test case, output a single line containing the answer modulo $\mathbf{10^9 + 7}$.

Example

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Input:
1
2 2

Output:
3
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Explanation

P(2) = 2 (1,2 divide 2, therefore number of numbers which divide 2 is 2).
so $P(2^{P(2)})$ is P(4) which is 3. (1,2,4 divide 4)

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