Problem A: Good sets

Statement:

Let A be the set $\{1, 2, \dots n\}$, where n is a given natural number. Set B is called *good* if it has the following properties:

a) B is a subset of A ;
b) For every x , if x belongs to B , then $2x$ doesn't belong to B ;
c) No other set C can have properties a) and b) and a greater number of elements than B ;

For example, if $n = 12$, then $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$, and the set $\{1, 3, 4, 5, 7, 9, 11, 12\}$ is good, while $\{1, 4, 5, 6, 7, 9, 11\}$ is not good (note that set C from the third property doesn't have to be a superset of B).

Given positive integer numbers n and b compute the following:

- The number of elements in every good set;
- With how many zeros the total number of good sets ends, if written in base b .

Input:

The first and only line of input contains two integers n and b , separated with one empty space, representing cardinality of the set A and the given base b , respectively.

Output:

Output contains only one line with two integers, separated with one empty space: the number of elements in every good set and number of zeros at the end of the total number of good sets in base b , respectively.

Example input:

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12 3
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Example output:

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8 1
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Example explanation:

All good sets consist of 8 elements and there are 6 of them - $6_{(10)} = 20_{(3)}$.

Constraints:

- $1 \le n \le 4 \cdot 10^9$
- $2 \le b \le 100$
- Number b is a prime number.

Time and memory limit: ?s / ?MB