Number system defines how to represent a number by a set of symbols. To change a decimal value to another number system with base b, we can
1. Divide the value by b and record the remainder.
2. If the quotient equals to zero, then stop.
3. Otherwise, go to step 1.
This process returns the value in the new number system from the least significant digit. However, if we want to output (print) the value, we need to get the most significant digit first, and get the least significant digit last. To do so, we need to identify the place value of the most significant digit. Divide the decimal value by the place value of the most significant digit gets the value of the most significant digit in the new number system. Then we can replace the decimal value by the remainder, and take the same process for getting values of the second, third, ..., and least significant digit in the new number system. Write a program using such process to change each input decimal value to a specified number system.

Input

The input contains several cases and ends with EOF. Each case contains two integer values, which in turn represent input decimal value and the base of the new number system.

Output

For each case, output the corresponding number in the new number system.

Sample Input

41 9
288 3

Sample Output

Change 41 to base 9 number system: 45
Change 288 to base 3 number system: 101200