Homework 6 (Deadline 15:00, April 22, submit your files to TronClass)

Please submit the source code only. The file name should include your student ID number. For example, if your ID number is 406290123, then the file names for problems 1 and 2 should be **406290123_hw6_1.txt** and **406290123_hw6_2.txt**, respectively.

1. Perfect number

An integer is said to be a perfect number if the sum of its divisors, including 1 (but not the number itself), is equal to the number. For example, 6 is a perfect number, because 6=1+2+3. Write a program to print all the perfect numbers between 2 and 1000. In the output, each line show one perfect number followed by all its divisors.

Sample output

6 1 2 3

……

2. Task Description

Write a program to report the number of times a number N appears in another number M. These appearances may overlap.

Limits

$10 \le N \le 99$

$1000000 \le M \le 9999999$

Input

Ask user to input N and M. The number N is between 10 and 99, and the number M is between 1000000 and 9999999, inclusively.

Output

The output has only one number, namely the number of times N appears in M.

Sample input

90 9090999

Sample output

2

3. 數字翻轉

Task Description

Given an integer, reverse the order of the digits. For example, if the input is 12345, then the output is 54321.

Input

Ask the user to enter an integer less than 2^{31}.

Output

The integer with the digits in the reversed order.

4. Binomial coefficient

Task description

Ask the user to input two integers. Take the larger one as N and the smaller one as M. Compute the binomial coefficient $C(N, M)$. Be sure to use floating-point arithmetic.

$$C(N,M) = \frac{N!}{M!(N-M)!} = \frac{N-M+1}{1} \times \frac{N-M+2}{2} \times \frac{N-M+3}{3} \times \cdots \times \frac{N}{M}$$

Input

Ask the user to enter two positive integers.

Output

The value of $C(N, M)$.