

# Questions of ITP course at Shahid-Beheshti-University

## Part 3

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### The largest number

Write a program that, upon receiving a natural number, finds its largest digit and prints its equivalent English word.

#### Entrance

In one line, the number  $n$  is written.

$$1 \leq n \leq 100000$$

#### Output

Print the English word equivalent to the largest input digit on standard output.

Note: All letters of the word must be capitalized.

### sum of sentences

Write a program that calculates the sum of  $n$  of the first term of the following sequence by receiving the natural number  $n$ .

$$9, -99, 999, -9999, \dots$$

Hint: Use the long long int data type to prevent the program from Integer Overflow do not

#### Entrance

In one line, the natural number  $n$  is written.

$$1 \leq n \leq 181$$

#### Output

On one line of standard output, print the sum of  $n$  terms of the first term of the sequence.

## Remove the digit

Write a program that, upon receiving a natural number, removes its odd digits.

### Entrance

In one line, the number  $n$  is written.

$$1 \leq n \leq 1000000000$$

### Output

Print the input number after removing its odd digits on standard output.

If all the digits of the number were deleted, print the statement "All digits were deleted".

## first finder

Write a program that finds prime numbers between two numbers.

### Entrance

In one line, two numbers  $a$  and  $b$  are written, which indicate the beginning and end of the desired interval, respectively.

$$0 \leq a < b \leq 100000$$

The interval also includes  $a$  and  $b$ .

### Output

According to the examples, in one line of the standard output, separate the prime numbers in the desired range with a comma character and print. If there is no first number in that range, print a blank line.

## Candy

The law buffet has set an interesting rule for the sale of a type of candy. With every 1000 Toman bill, you can buy a candy and get a bonus candy for every mmm of candy skin delivered to the buffet!!! The goal is to calculate the maximum number of candies that can be taken from the buffet with a certain amount of money.

### Entrance

In one line, the numbers n and mmm are written, which show the number of thousand toman bills and the number of skins needed to deliver a candy, respectively.

$$1 \leq n \leq 1000$$

$$2 \leq m \leq 100$$

### Output

On one line of standard output, print the maximum number of candies that can be purchased.

## diamond

Write a program that, upon receiving a natural number, prints the corresponding diamond shape.

### Entrance

In one line, the number n is written.

$$3 \leq n \leq 100$$

### Output

Print the desired shape according to the examples in the standard output.

Note: Pay attention to the difference between odd and even entries.

## analysis (scoring)

Write a program that decomposes a number into its prime factors.

### Entrance

In one line, the number  $n$  is written.

$$2 \leq n \leq 100000$$

### Output

According to the examples, print the prime factors of the number in ascending order along with their powers (except when the factor is a power of 1) on the standard output.