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ACM International Collegiate Programming Contest 2010

Latin American Regional Contests

October 22nd-23rd, 2010

Warmup Session

This problem set contains 2 problems; pages are numbered from 1 to 2.

This problem set is used in simultaneous contests hosted in the following countries:

- Argentina
- Bolivia
- Brazil
- Chile
- Colombia
- Cuba
- Peru
- Mexico
- Venezuela

General Information

Unless otherwise stated, the following conditions hold for all problems.

Input

1. The input must be read from standard input.
2. The input contains several test cases. Each test case is described using a number of lines that depends on the problem.
3. When a line of data contains several values, they are separated by *single* spaces. No other spaces appear in the input. There are no empty lines.
4. Every line, including the last one, has the usual end-of-line mark.
5. The end of input is indicated with a line containing certain values that depend on the problem. This line should not be processed as a test case.

Output

1. The output must be written to standard output.
2. The result of each test case must appear in the output using a number of lines that depends on the problem.
3. When a line of results contains several values, they must be separated by *single* spaces. No other spaces should appear in the output. There should be no empty lines.
4. Every line, including the last one, must have the usual end-of-line mark.
5. No special mark should be written to indicate the end of output.

Problem A
Mean Median Problem

Problem code name: `mean`

The mean of three integers A, B and C is $(A + B + C)/3$. The median of three integers is the one that would be in the middle if they are sorted in non-decreasing order.

Given two integers A and B, return the minimum possible integer C such that the mean and the median of A, B and C are equal.

Input

Each test case is given in a single line that contains two integers A and B ($1 \leq A \leq B \leq 10^9$).

The last test case is followed by a line containing two zeros.

Output

For each test case output one line containing the minimum possible integer C such that the mean and the median of A, B and C are equal.

Sample input	**Output for the sample input**

`1 2`
`6 10`
`1 1000000000`
`0 0`
	`0`
	`2`
	`-999999998`

Problem B
Factorial Again!

Problem code name: `factorial`

Mathew, an engineering freshman, is developing an original positional notation for representing integer numbers. He called it "A Curious Method" (ACM for short). The ACM notation uses the same digits as the decimal notation, i.e., 0 through 9.

To convert a number A from ACM to decimal notation you must add k terms, where k is the number of digits of A (in the ACM notation). The value of the i-th term, corresponding the i-th digit a_i, counting from right to left, is $a_i \times i!$. For instance 719_{ACM} is equivalent to 53_{10}, since $7 \times 3! + 1 \times 2! + 9 \times 1! = 53$.

Mathew has just begun studying number theory, and probably does not know which properties a numbering system should have, but at the moment he is only interested in converting a number from ACM to decimal. Could you help him?

Input

Each test case is given in a single line that contains a non-empty string of at most 5 digits, representing a number in ACM notation. The string does not have leading zeros.

The last test case is followed by a line containing one zero.

Output

For each test case output a single line containing the decimal representation of the corresponding ACM number.

Sample input	**Output for the sample input**
719 1 15 110 102 0	53 1 7 8 8