
Integer square roots

P63448_en

The integer square root of a natural number x is a natural number a such that $a^2 \leq x$ but $(a + 1)^2 > x$. For instance, the integer square root of 100 is 10, and it is also of 120.

Write a program that reads natural numbers and prints their integer square roots. Your program must include the function

```
int root (int x);
```

that returns the integer square root of a natural number $x \leq 10000$.

Input

Input is a sequence of natural numbers.

Output

For each number x of the output, print in a line and separated by a space, x and its root.

Sample input

```
100
120
121
225
226
```

Sample output

```
100 10
120 10
121 11
225 15
226 15
```

Problem information

Author : Jordi Petit

Translator : Carlos Molina

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