
Reduction of digits

P96965_en

Write a function that, given a natural number @x@, returns the reduction of its digits.

Interface

```
C++      int reduction_of_digits (int x);
C        int reduction_of_digits (int x);
Java     public static int reductionOfDigits (int x);
Python   reduction_of_digits (x) # returns int
         reduction_of_digits (x: int) -> int
```

In this exercise, we say that reducing the digits of a number means computing the sum of its digits. If the sum has just one digit, this is already the result. Otherwise, we apply the same process again to the sum, until we get a single digit.

Solve this problem using a recursive function to return the sum of the digits of a natural number @x@.

Interface

```
C++      int sum_of_digits(int x);
C        int sum_of_digits(int x);
Java     public static int sumOfDigits(int x);
Python   sum_of_digits(x) # returns int
         sum_of_digits(x: int) -> int
```

Precondition

@x@ is a natural number.

Observation

Although there is a mathematic trick to solve this problem faster than by adding up its digits, do not use it here.

Observation

You only need to submit the required procedure; your main program will be ignored.

Problem information

Author: Jordi Petit

Translator: Carlos Molina

Generation: 2026-01-25T12:13:05.391Z

© *Jutge.org*, 2006–2026.
<https://jutge.org>