
Multiples of three

P61930_en

A well-known mathematical property states that a natural number is a multiple of three if and only if the sum of its digits is also a multiple of three. For instance, the sum of the digits of 8472 is $8 + 4 + 7 + 2 = 21$, which is a multiple of three. Therefore, 8472 is also a multiple of three.

Implement a recursive function that tells if a strictly positive natural number $@n@$ is a multiple of three or not.

```
bool is_multiple_3(int n);
```

Interface

C++	bool is_multiple_3(int n);
C	int is_multiple_3(int n);
Java	public static boolean isMultiple3(int n);
Python	is_multiple_3(n) # returns bool is_multiple_3(n: int) -> bool

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

```
int sum_of_digits(int n);
```

Interface

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

Observation

Here, you are allowed to use the operations of division and integer remainder only with the number 10. Otherwise, this exercise would be totally trivial!

Problem information

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