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PAINLESS

ChocolatesByNumbers

START

There are N chocolates in a circle. Count the number of chocolates you will eat.

Programming language: C++ ▼

Two positive integers N and M are given. Integer N represents the number of chocolates arranged in a circle, numbered from 0 to $N - 1$.

You start to eat the chocolates. After eating a chocolate you leave only a wrapper.

You begin with eating chocolate number 0. Then you omit the next $M - 1$ chocolates or wrappers on the circle, and eat the following one.

More precisely, if you ate chocolate number X , then you will next eat the chocolate with number $(X + M)$ modulo N (remainder of division).

You stop eating when you encounter an empty wrapper.

For example, given integers $N = 10$ and $M = 4$. You will eat the following chocolates: 0, 4, 8, 2, 6.

The goal is to count the number of chocolates that you will eat, following the above rules.

Write a function:

```
int solution(int N, int M);
```

that, given two positive integers N and M , returns the number of chocolates that you will eat.

For example, given integers $N = 10$ and $M = 4$. the function should return 5, as explained above.

Assume that:

- N and M are integers within the range $[1..1,000,000,000]$.

Sieve of
Eratosthenes

Lesson 12

**Euclidean
algorithm**

Lesson 13

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Lesson 90

Tasks from
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2015 challenge

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Tasks from
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2016 College
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Lesson 99

Complexity:

- expected worst-case time complexity is $O(\log(N+M))$;
- expected worst-case space complexity is $O(\log(N+M))$.

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