

Project Euler #196: Prime triplets



This problem is a programming version of [Problem 196](#) from [projecteuler.net](#)

Build a triangle from all positive integers in the following way:

```
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31 32 33 34 35 36
37 38 39 40 41 42 43 44 45
46 47 48 49 50 51 52 53 54 55
56 57 58 59 60 61 62 63 64 65 66
. . .
```

Each positive integer has up to eight neighbours in the triangle.

A set of three primes is called a *prime triplet* if one of the three primes has the other two as neighbours in the triangle.

For example, in the second row, the prime numbers **2** and **3** are elements of some prime triplet.

If row **8** is considered, it contains two primes which are elements of some prime triplet, i.e. **29** and **31**.

If row **9** is considered, it contains only one prime which is an element of some prime triplet: **37**.

Define $S(n)$ as the sum of the primes in row n which are elements of any prime triplet.

Then $S(8) = 60$ and $S(9) = 37$.

You are given that $S(10000) = 950007619$.

Find $S(a) + S(b)$.

Input Format

The only line of each test file contains exactly two integers separated by a single space: a and b .

Constraints

- $1 \leq a, b \leq 10^7$

Output Format

Output exactly one number that equals to $S(a) + S(b)$.

Sample Input 0

```
8 9
```

Sample Output 0

```
97
```

Sample Input 1

```
9 10000
```

Sample Output 1

950007656