Euler is a well-known matematician, and, among many other things, he discovered that the formula $n^2 + n + 41$ produces a prime for $0 \leq n < 40$. For $n = 40$, the formula produces 1681, which is $41 * 41$. Even though this formula doesn't always produce a prime, it still produces a lot of primes. It's known that for $n \leq 10000000$, there are 47,5% of primes produced by the formula!

So, you'll write a program that will output how many primes does the formula output for a certain interval.

Input

Each line of input will be given two positive integer a and b such that $0 \leq a \leq b \leq 10000$. You must read until the end of the file.

Output

For each pair a, b read, you must output the percentage of prime numbers produced by the formula in this interval ($a \leq n \leq b$) rounded to two decimal digits.

Sample Input

```
0 39
0 40
39 40
```

Sample Output

```
100.00
97.56
50.00
```