Shopee has N software engineers. Shopee accommodates them by arranging N tables on a 1D plane. However, many people raise concerns that the work environment is too noisy. To mitigate this issue, Shopee decides to group the engineers into K groups. A group is a non-overlapping segment of contiguous engineers. Shopee will then put dividers between the groups.

The noise value of a group is defined by the following function:

$noise(l, r) = (\sum_{i=l}^{r} A_i)(r - l + 1)$

Let:

$noise(l, r)$ be the noise value of a group consisting of the l-th engineer up to the r-th engineer.

A_i be the noise factor of the i-th engineer.

Shopee wants to minimize the total noise value. Please help Shopee to find the minimum total noise value possible.

Input

The first line of input contains 2 integers: N, $K (1 \leq N \leq 10\,000, 1 \leq K \leq min(N, 100))$ representing the number of engineers and the number of groups respectively. The next line contains N integers: $A_i (1 \leq A_i \leq 10\,000)$ representing the noise factor of the i-th engineer.

Output

Output in a line an integer representing the minimum total noise value possible.

SAMPLE INPUT

```
4 2
1 3 2 4
```

SAMPLE OUTPUT

```
20
```

Explanation

There are 3 ways to put the divider:

1. 1 | 3 2 4
   Noise = (1 * 1) + (9 * 3) = 28
2. 1 3 | 2 4
   Noise = (4 * 2) + (6 * 2) = 20
3. 1 3 2 | 4
   Noise = (6 * 3) + (4 * 1) = 22

We can see that from all the possibilities, 20 is the minimum total noise value.

Time Limit:	1.0 sec(s) for each input file.
Memory Limit:	256 MB
Source Limit:	1024 KB
Marking Scheme:	Score is assigned when all the testcases pass.
Allowed Languages:	Bash, C, C++, C++14, C++17, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, Java 14, JavaScript(Rhino), JavaScript(Node.js), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, Python 3.8, R(RScript), Racket, Ruby,

Rust, Scala, Swift-4.1, Swift, TypeScript, Visual Basic