Petya was one of the first lucky ones to buy a ticket for the Arctic Monkeys concert in Burgas. Now she is questioning why she did that – after all she hasn‘t even heard any of the group‘s songs. For this reason she decided that she will learn to like their songs.

For this purpose she asks her friend for advice and receives **N** playlists, labeled with the natural numbers from 1 to N, with respectively $a\_{1}, a\_{2}, …, a\_{n}$ songs in them. Petya wants to hear the playlists in the order in which they were given to her from 1 to N, so that she listens to a number (at least one) of whole playlists every day for K days. Because she doesn‘t want the group to become boring to her, she wants the sum of the difference of the number of listened songs for every two consecutive days, where the first day falls on an odd date(the first day always falls on an odd date), to be as large as possible. Namely, if she listens to $c\_{i}$ songs on day i, then she wants to maximize the following sum:
 $\sum\_{i=1}^{K/2}|c\_{2i}-c\_{2i+1}|$

 Petya will only listen to whole playlists, so the sequence $c\_{1}, c\_{2}, …, c\_{k}$ satisfies $c\_{i}=\sum\_{j=p\_{i}}^{p\_{i+1}-1} a\_{j}$, where *p* is a number sequence, for which $p\_{i}<p\_{i+1}$ for every $\leq k$ , $p\_{1}=1$ and $p\_{k+1}=N+1$ .

**Input**

On the first row of the input file monkeys.in On the first row of the description of every case there are two positive numbers *N* and *K.* On the next row there are *N* natural numbers – $a\_{1},a\_{2}, …, a\_{n}$.

**Output**

In the first row of monkeys.out output one natural number – the maximum sum.

**Constraints**

$$1\leq N\leq 3\*10^{4}$$

$$1\leq K\leq 200$$

$$1\leq a\_{i}\leq 10^{6}$$

**Time limit: 2 sec.**

**Memory limit: 256 MB.**

**Example tests**

|  |  |
| --- | --- |
| **Inputs (monkeys.in)** | **Outputs (monkeys.out)** |
| 6 42002 505 2013 1 4 5  | 4520 |
| 7 210 24 11 2021 12 8 2022 | 4088 |
| 10 61 2 3 4 5 6 7 8 9 10 | 37 |

**Explanation for the first test case**

In the first test case the optimal split is 2002 505 2013 | 1 | 4 | 5

$c1=2002+505+2013=4520 $;$ c2=1 $;$ c3 = 4$; $c4 = 5$

The sum is $\left|4520-1\right|+\left|4-5\right|=4519+1=4520$