

Princess of Persia

Sultan of Persia is in a problem. As he is getting old day by day, he has decided to find the most eligible groom for his daughter, the Princess of Persia. He has sent open invitation to all - anyone who thinks he has courage, intelligence and is caring enough to look after the beautiful princess should come and give it a try. Lots of interested people has now become sultan's guest to prove their eligibility. But now the Sultan has a decision problem, whom to select for the princess ?

He has taken a lot of tests, but almost all of them seem equally skilled on one thing or another. So the Sultan can't differentiate between them. However, after thinking a lot, he has finally come to a solution. He will take a test of love and he is pretty much sure he can find one after this test.

To qualify the test, you must go to the royal rose garden of persia. The gardener will give you N boxes. Each box contains 1 or more roses. You can count how many roses does a box contain, but you can't move a rose from one box to another. You have to make K groups of boxes for the princess. Each group will contain 3 boxes. For each group, princess will keep the box with the highest number of roses for herself ;-) and will use the rest two for decoration purposes. Number of roses the first one contains is not important, as long as that number is the highest. However, number of roses the rest two boxes contain should be as close as possible. To make things clearer, for a group of boxes with number of roses P, Q, R where $P \leq Q \leq R$, $(P - Q)^2$ is called the 'badness' of the set. The princess is very conscious about the badness of your gifts and she will marry the one, for whom total total badness of all the sets is minimized.



Figure 1: Box of roses

Input Specification

Each test case begins with two integers K, N . $0 \leq K \leq 1000$ and $3K \leq N \leq 5000$. There are N positive integers S_i on the next line in non-decreasing order indicating the number of roses each of the boxes contain $1 \leq S_i \leq 32000$.

Output Specification

For each test case in the input, print a line containing the minimal total badness of all the sets.

Sample Input

```
9 40
1 8 10 16 19 22 27 33 36 40 47 52 56 61 63 71 72 75 81 81 84 88 96 98 103 110
113 118 124 128 129 134 134 139 148 157 157 160 162 164
```

```
6 40
1 8 10 16 19 22 27 33 36 40 47 52 56 61 63 71 72 75 81 81 84 88 96 98 103 110
113 118 124 128 129 134 134 139 148 157 157 160 162 164
```

```
3 20
1 5 8 10 20 30 55 120 450 500 600 700 1600 2500 2510 2600 2800 2810 2820 2830
```

```
5 20
1 5 8 10 20 30 55 120 450 500 600 700 1600 2500 2510 2600 2800 2810 2820 2830
```

```
1 10
1 5 7 50 52 70 75 78 80 83
```

```
2 10
1 5 7 50 52 70 75 78 80 83
```

Sample Output

```
23
6
120
320
4
8
```

Hints

For the first sample input, a possible collection of the 9 sets is:

```
8,10,16; 19,22,27; 61,63,75; 71,72,88; 81,81,84; 96,98,103; 128,129,148;
134,134,139; 157,157,160
```

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