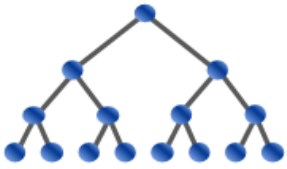

USACO 2025 JANUARY CONTEST, PLATINUM
PROBLEM 2. SHOCK WAVE

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Contest has ended.

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English (en)

Bessie is experimenting with a powerful hoof implant that has the ability to create massive shock waves. She has N ($2 \leq N \leq 10^5$) tiles lined up in front of her, which require powers of at least $p_0, p_1, \ldots, p_{N-1}$ to break, respectively ($0 \leq p_i \leq 10^{18}$).

Bessie can apply power by punching a specific tile but due to the strange nature of her implant, it will not apply any power to the tile she punches. Instead, if she chooses to punch tile x once, where x is an integer in $[0, N-1]$, it applies $|i-x|$ power to tile i for all integers i in the range $[0, N-1]$. This power is also cumulative, so applying 2 power twice to a tile will apply a total of 4 power to the tile.

Please determine the fewest number of punches required to break all the tiles.

INPUT FORMAT (input arrives from the terminal / stdin):

The first line contains T ($1 \leq T \leq 100$) representing the number of test cases.

Line $2t$ contains a single integer N, the number of tiles in test case t.

Line $2t+1$ contains N space separated numbers $p_0, p_1, \ldots, p_{N-1}$ representing that tile i takes p_i power to be broken.

It is guaranteed that the sum of all N in a single input does not exceed $5 \cdot 10^5$.

OUTPUT FORMAT (print output to the terminal / stdout):

T lines, the ith line representing the answer to the ith test case.

SAMPLE INPUT:

```
6
5
0 2 4 5 8
5
6 5 4 5 6
5
1 1 1 1 1
5
12 10 8 6 4
7
6 1 2 3 5 8 13
2
1000000000000000000 1000000000000000000
```

SAMPLE OUTPUT:

```
2
3
2
4
4
2000000000000000000
```

For the first test, the only way for Bessie to break all the tiles with two punches is to punch 0 twice, applying total powers of $[0, 2, 4, 6, 8]$ respectively.

For the second test, one way for Bessie to break all the tiles with three punches is to punch 0, 2, and 4 one time each, applying total powers of $[6, 5, 4, 5, 6]$ respectively.

For the third test, one way for Bessie to break all the tiles with two punches is to punch 0 and 1 one time each, applying total powers of $[1, 1, 3, 5, 7]$ respectively.

SCORING:

- Input 2: All p_i are equal.

- Inputs 3-6: $N \leq 100$
- Inputs 7-14: No additional constraints.

Problem credits: Suhas Nagar

Contest has ended. No further submissions allowed.