To The Finals (finals)

After three rounds of the IIOT, Davide is on top of the IIOT ranking. His goal is to reach the final, but there is still one round left to go.

SCORE	Σ ROUND1	Σ ROUND2	Σ ROUND3	Σ ROUND4
2494	820	900	774	–
2420	820	800	800	–
1750	515	595	640	–
1735	595	630	510	–
1716	500	645	571	–
1715	550	645	520	–
1682	545	590	547	–
1524	510	550	464	–
1460	440	580	440	–
1460	350	610	500	–
1420	435	575	410	–
1406	480	395	531	–
1400	350	580	470	–
1395	380	515	500	–
1355	405	580	370	–

Figure 1: Will Davide win the fourth round?

N teams participate in the IIOT, numbered from 0 to $N-1$, Davide's team is the team 0. The team i scored $S_{i,1}$, $S_{i,2}$, $S_{i,3}$ points respectively in the first three rounds. Also, Davide knows that in the last round there are P problems, each with a maximum score of 100 points.

To secure his place in the final, Davide wants to **finish first** in the overall ranking of the four rounds, which means that his team needs to have a strictly higher total score than all the other teams. However, Davide is lazy and doesn't want to score more points than he strictly needs. Help Davide find the minimum necessary score that guarantee him to finish first overall regardless of the score that the other teams will get.

> ☞ Among the attachments of this task you may find a template file `finals.*` with a sample incomplete implementation.

Input

The first line contains two integers, N and P. The next N lines contain three integers $S_{i,1}$, $S_{i,2}$, $S_{i,3}$, the score of the team i in the first three rounds.

Output

You need to write a single line with an integer: the minimum necessary score that guarantee Davide to finish first overall, regardless of the score that the other teams will get.

Constraints

- $2 \leq N \leq 100$.
- $1 \leq P \leq 100$.
- $0 \leq S_{i,1}, S_{i,2}, S_{i,3} \leq 10\,000$ for each $i = 0 \ldots N-1$.
- Davide's team is the team 0, his team is at the top of the rankings after the first three rounds.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points) Examples.

– **Subtask 2** (44 points) No team scored in the first two rounds, formally $S_{i,1} = S_{i,2} = 0$.

– **Subtask 3** (56 points) No additional limitations.

Examples

input	output
5 9 820 900 774 820 800 800 515 595 640 595 630 510 500 645 571	827
5 9 900 900 1000 420 690 137 500 888 345 360 480 720 300 200 100	0

Explanation

In the **first sample case**, if Davide scores at least 827 points in the last round, he will finish first overall no matter what the other teams will score.

In the **second sample case**, Davide can relax, he will always be the first in the ranking, regardless of his scores.