DMOPC '15 Contest 7 P1 - Kemonomimi Competition

Time limit: 1.0s	**Memory limit:** 64M
Java 8: 2.5s	Java 8: 256M
Python: 2.5s	Python: 256M

FatalEagle is participating in the Educational Computing Olympiad for Otakus (ECOO). It seemed to him that he was in yet another ordinary competition to fly through when he realizes that his 4 other teammates are kemonomimi.

The contest consists of N problems, with a maximum of 2 submissions available per problem per team. While **FatalEagle** was napping, his teammates started without him! Each of the N problems was attempted exactly once, with the i^{th} kemonomimi's submission for the j^{th} problem receiving P_j points.

FatalEagle is able to concurrently solve all N problems provided that he has enough time. However, just the thought of having such beautiful anthropomorphic females on the same team as himself is enough to drive **FatalEagle** insane! Each of the kemonomimi i has her own cuteness factor C_i which increases the time he takes to produce his solution by $C_i\times$.

Having exhausted all of their energy, the kemonomimi could no longer concentrate on the tasks at hand and called upon their teammate **FatalEagle** to finish the contest. Not wanting to waste any more of the time remaining of the **original** 3 **hours**, **FatalEagle** would *really* like to know how many additional points he can earn.

Input Specification

The first line of input contains N $(1 \leq N \leq 10)$.

The second line of input contains 4 space-separated integers C_i $(1 \leq C_i \leq 10)$, representing the cuteness factor of the i^{th} kemonomimi.

The next N lines contain 4 space-separated integers i, P_j, S_j, T_j describing the j^{th} problem:

- i $(1 \leq i \leq 4)$, identifying the kemonomimi who worked on the first submission of this problem;
- P_j $(0 \leq P_j \leq 10)$, the amount of points (out of a maximum of 10), the first submission received;
- S_j $(0 \leq S_j \leq 180)$, the time elapsed in minutes from the start of the competition to the end of the first submission;
- T_j $(0 \leq T_j \leq 20)$, the amount of time in minutes **FatalEagle** needs to finish coding the solution to the problem undisturbed;

Output Specification

Output N lines, the j^{th} of which represents the number of additional points **FatalEagle** can earn concurrently for the j^{th} problem.

Output `The kemonomimi are too cute!` instead if the problem cannot successfully be solved in time.

Sample Input

```
3
1 3 6 9
2 1 0 20
3 3 120 1
4 9 75 12
```

Sample Output

```
9
7
The kemonomimi are too cute!
```

Explanation for Sample Output

FatalEagle starts programming concurrently 2 hours after the start of the competition! The kemonomimi woke him up after their last submission, 120 minutes into the competition.

The second kemonomimi contributed to the first problem and her lingering aura of cuteness *triples* the time taken for **FatalEagle** to type up a solution; Therefore, it takes $20 \times 3 = 60$ minutes to solve this problem, finishing just as the contest ends!

The second problem was attempted by the third kemonomimi, taking $1 \times 6 = 6$ minutes to solve.

Unfortunately, the cuteness of the fourth kemonomimi was just too much for **FatalEagle** to bear, and he is unable to solve the third problem in time.

FatalEagle jolts awake in his bed, drenched in sweat. What a horrible nightmare!

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nyah~