Jojo has a fishing hobby. After learning how to fish, here is the process of how to fish based on what Jojo learned.

1. In the beginning, the distance between the fish and the fisherman is D meter. Fish moves away from the fisherman with the speed of V m/s, meanwhile fisherman can pull the fish towards him with the speed of 5 m/s.
2. The fishing process is a turn-based between the fish and the fisherman, where the first turn is the fish's turn. Every turn happens for P second.
   a. In fish's turn, suppose that the fish is currently moving away from the fisherman with the speed of v m/s. In a second, fish will move away from the fisherman for v m.
   b. In fisherman's turn, for every second, fish will move closer to the fisherman with the constant speed of 5 m/s. At the same time, for every second, fish loses its speed by K m/s. Fish's speed cannot be negative number, and it will stop at 0 m/s.

Jojo has 5 types of fishing line, each has its own limitation on how heavy the fish could be lifted. If the fish's weight is more than the limitation, then the fishing line will break. Fishing line's information as well as the limitation can be seen in the following table.

Fishing line type	Fish weight limitation
1	450
2	900
3	1320
4	3200
5	4500

Determine the first integer time where Jojo catches the fish. Print the time in the format HH:MM:SS. It is known that 1 hour is 60 minutes, and 1 minute is 60 seconds. If the fish's weight is more than the limitation of the fishing line that Jojo uses, tell Jojo if the fishing line will break

Format Input

The first line consists of an integer T which denotes the number of test cases.

Each test case consists of a single line which contains 6 integers X, W, D, V, K, Y which represents the type of the fishing line, the fish's weight, the distance between the fish and the fisherman, fish's speed in the beginning, decrement of fish's speed, and the duration of each turn in second, respectively.

Format Output

Each test case consists of a single line with the format of "Case #X: ", where X denotes the test case number starting from 1. If the fish's weight surpasses the limitation of the fishing line, output "Line broke up". Otherwise, output the first integer time where Jojo catches the fish in the format of HH:MM:SS.

Constraints

- $1 \leq T \leq 10$
- $1 \leq X \leq 5$
- $1 \leq W \leq 10^4$
- $1 \leq D, V, K, Y \leq 100$

Sample Input 1	Sample Output 1
3	Case #1: Line broke up
2 901 10 3 1 2	Case #2: 00:00:08
2 900 10 3 1 2	Case #3: 01:08:40
5 1 100 100 100 100	

Explanation

In the first sample, the fish's weight surpasses the limitation of the fishing line.

In the second sample, here is the chronology of the fishing process

Second	Distance	Fish speed	Turn
0	10	3	-
1	13	3	Fish
2	16	3	Fish
3	11	2	Fisherman
4	6	1	Fisherman
5	7	1	Fish
6	8	1	Fish
7	3	0	Fisherman
8	CATCHED!	0	Fisherman

In the third sample, here is the chronology of the fishing process

- In the first 100 seconds, the fish will swim for 100 s with the speed of 100 m/s. After the fish's turn, the distance will be 10100 m.
- In the next 100 seconds, the fish will lose its speed, and move closer to the fisherman by 500 m.
- In the next 100 seconds, the fish does not swim because its speed is 0 m/s
- In the next 100 seconds, the fish moves closer to the fisherman by 500 m.

It is easy to see that after the first 100 seconds, for every 200 seconds, the fish move closer to the fisherman by 500 m. After 20×200 seconds, the distance will be 100 m and it is the fisherman's turn. Fisherman needs an additional of 20 seconds, and the fish will be caught. In total, it took $100 + 20 \times 200 + 20 = 4120$ seconds, or 1 hour 8 minutes 40 seconds.

NOTE: USE C LANGUAGE.

DON'T USE RECURSIVE, RETURN, VOID, FUNCTION