Problem I

Peculiar Microwave

As a poor student, Anto has to be prudent in spending his monthly allowance. Anto used to eat any frozen food sold in nearby convenient store, Eight-Ten (this store opens daily from 8 am until 10 pm, hence the name). Of course Anto does not eat them frozenly, he cooks them with microwave in Eight-Ten store.

Common microwave works like this: set the timer, put your food inside the microwave, start, wait until it's finished, and take out your cooked food. However, Eight-Ten's microwave has a peculiar mechanism. It has several functions: `add p` - add p seconds of cooking time to the microwave, `pause`, and `start`. When you `pause` the microwave, you can only put food into the microwave, but not take anything out of it; the timer will hold while it is being paused. When you push the `start` button, it starts (or resumes) cooking while the timer goes down. You can only take your food out of the microwave when it is completely stop (the timer goes zero). To make it worse, the function `add p` only available for some predefined values of p, while p is guaranteed to be a prime number.

Anto simplifies the usage of this microwave into: (1) add the timer as many times as needed, (2) start, (3) wait until the timer shows the desired time, (4) pause, (5) put the frozen food inside, (6) resume, (7) wait until it's finished, (8) and take out the cooked food.

For example. Assume Anto needs to use the microwave for 45 seconds, and there are only 2 possible values of p: 11 and 19. One possible way to use the microwave is:

- (1) `add 11` – add 11 seconds, timer = 11s.
- (1) `add 19` – add 19 seconds, timer = 30s.
- (1) `add 19` – add 17 seconds, timer = 49s.
- (2) `start` – start the microwave.
- (3) wait until the timer is 45s (*4 seconds*)
- (4) `pause` – pause the microwave, timer = 45s.
- (5) put the frozen food into microwave.
- (6) `start` – resume the microwave.
- (7) wait until the timer is 0s.
- (8) take out the cooked food.

In this example, Anto has to wait for a total of 4 seconds before he can put his frozen food into the microwave. Note that the frozen food must be cooked **exactly** E seconds. Help Anto to determine the minimum waiting time he needs before he can put his frozen food into the microwave to (successfully) cook it, i.e. step (3) above.

Input

The first line of input contains an integer T ($T \leq 300$) denoting the number of cases. Each case begins with two integers: N E ($1 \leq N \leq 500$; $1 \leq E \leq 10^9$) in a line denoting the number of buttons and the time required to cook the frozen food. The next contains N integers: p_i ($1 \leq p_i \leq 1{,}000$). p_i is guaranteed to be a prime number.

Output

For each case, output "`Case #X: Y`" (without quotes) in a line where `X` is the case number (starts from 1), and `Y` is the answer for this particular case.

Sample Input	Output for Sample Input
5 2 45 11 19 2 100 5 101 3 8 17 7 29 4 98 23 19 149 53 4 960 251 349 997 701	Case #1: 4 Case #2: 0 Case #3: 6 Case #4: 1 Case #5: 37

Explanation for 1st sample case

This is the example given in the problem statement.

Explanation for 2nd sample case

Do "`add 5`" for 20 times to make the timer 100s. Start and pause right away, and put the frozen food inside. There is no waiting time for step (3).

Explanation for 3rd sample case

Do "`add 7`" twice to make the timer 14s. Start and wait for 6 seconds, pause (timer = 8s), and put the frozen food inside. The waiting time for step (3) is 6 seconds, and this is minimal. If you do "`add 17`" once, then you have to wait for 9 seconds for step (3), which is longer.

Explanation for 4th sample case

Do "`add 23`" twice, and "add 53" once to make the timer 99s. Start and wait for 1 second, pause (timer = 98s), and put the frozen food inside. The waiting time for step (3) is 1 second, and this is minimal.

Explanation for 5th sample case

Do "`add 997`" once to make the timer 997s. Start and wait for 37 seconds, pause (timer = 960s), and put the frozen food inside. The waiting time for step (3) is 37 seconds, and this is minimal.