Problem C
Jet2 Trip

Time limit: **3 seconds**
Memory limit: **1024 megabytes**

Problem Description

"Nothing beats a Jet2 holiday. And right now, you can save 50 pounds per person. That's 200 pounds off for a family of four."

Allen saw the ad and decided to have a trip with the TAs of the Java Programming course – Eva, Jim, and Morris. While he's on the plane, he suddenly becomes curious about how far the plane will be from the takeoff position after some time. He opens the small screen in front of his seat and checks the flight information, but the system only shows the plane's current distance from takeoff location, current velocity and constant acceleration. Since the plane is flying with uniform acceleration, Allen realizes he can calculate it with the provided information, but he's feeling sleepy.

He looks around for help: Eva is watching a Mayday concert clip, Jim is solving LeetCode problems, and Morris is playing Arknights. Everyone is busy, no one can help him. So, Allen decides to leave this task to you, the candidate taking the Java practical exam!

Given the plane's current distance from takeoff location x(km), current velocity v(km/hr), constant acceleration a(km/hr^2), and a period of time t, please help Allen calculate how far the plane will be from the takeoff position after t hours.

Note that the formula for displacement, s, under uniform acceleration is $s = v \times t + \frac{1}{2} \times a \times t^2$.

Input Format

Your program is to read from standard input. The input consists of T test cases. The number of test cases T is given in the first line of the input. Each test case contains four integers x, v, a and t.

Output Format

Your program is to write to standard output. Print exactly one line for each test case. The line is to contain the integer, which represents how far the plane will be from the takeoff position after t hours. Please see the sample output.

Technical Specification

- $1 \leq T \leq 10,000$
- $0 \leq x \leq 10,000$
- $0 \leq v \leq 1,200$
- $0 < a \leq 500$

- $0 < t \leq 20$

Sample Input 1

```
4
0 0 200 20
2025 1105 16 10
10000 1200 500 20
1 1 1 1
```

Sample Output 1

```
40000
13875
134000
2
```